Postgraduate attachment to general practice; Influence on doctors' future career intentions

Dr Neil Macarthur Munro

Doctor of Philosophy
University of Sussex
February 2011

Acknowledgements

I am indebted to my supervisor, Professor Michael Eraut, for his expert advice and skilled support during the development and implementation of this study. I am grateful to Stephen Steadman for his statistical guidance in the analysis of questionnaire responses and to Sarah Aynsley for her review of the final thesis. I am also grateful to Professor Abdollah Tavabie, General Practice Postgraduate Dean of Kent, Surrey and Sussex (KSS) Deanery for his active encouragement of my research and the Deaneries' ongoing financial support. Without this backing the study would not have been feasible. I would like to acknowledge the generosity of Professor Rodney Gale and Professor Janet Grant in permitting use of sci 59 questionnaires and associated analytical software.

I am particularly grateful to my wife, Bernadette, and my two sons, Harry and David, for their forbearance, and support, during the time of the study and the preparation of the thesis.

Table of Contents

List of Tables

List of Figures

Appendices

POSTGRADUATE ATTACHMENT TO GENERAL PRACTICE; INFLUENCE ON DOCTORS' FUTURE CAREER INTENTION

SUMMARY

Recruitment of medical graduates to general practice careers in the UK, as in other developed countries, remains challenging. Currently general practice attracts fewer doctors than health care planners anticipate will be needed to meet the burgeoning health needs of an ageing population. Understanding the factors that influence doctors in their career choices is important to manpower planners, the profession and society as a whole.

A two year postgraduate foundation programme for all doctors was introduced into the UK in 2006. One of its main intentions was to provide doctors with postgraduate clinical attachments that would assist them in making informed career choices. This has resulted, for the first time, in large numbers of recent medical graduates experiencing several specialties before applying for specialty specific training programmes.

The main aim of this thesis was to assess the influence of a four month postgraduate attachment in general practice in the second foundation year on doctors' career intent. It was hypothesised that the attachment would have a positive impact on recruitment to general practice careers. This hypothesis was tested using a combined quantitative and qualitative approach.

A literature review examined career decision making in medicine. It was divided chronologically into sections covering decision making at school, university and in the early postgraduate years. In addition a section focussed on decision making in careers other than medicine.

A validated career inventory (sci 59) measuring change in career preference was selected for use in this study. The output is in the form of career rankings among 59 medical specialties. In addition, a semi-structured interview questionnaire was developed based on themes emerging from the literature review and was refined

following piloting. Interviews were recorded, transcribed and thematically analysed using NVivo 7.

The study was conducted in the Kent, Surrey and Sussex Deanery between 2005 and 2008. Participants (n=225) included all doctors whose second foundation year programme included a four month attachment in general practice. They were sent a sci 59 questionnaire at the beginning of their attachment and a further questionnaire at the end. Those responding to both questionnaires were invited to take part in an interview.

112 participants completed sci 59 questionnaires at the beginning and end of their 4 months attachment. Initial analysis demonstrated a small, statistically non-significant improvement in career intent towards general practice. Using a measure that reflects movement in ranking between the two questionnaires, further analysis showed a small, statistically significant, improvement in the ranking of general practice among participants who had low initial rankings for general practice.

30 participants were interviewed. Placements in general practice during the second foundation year were generally regarded in a very positive light. Doctors particularly valued ongoing relationships with patients as well as involvement with local communities. They commented on the high quality of supervision and the structured learning environment of their attachments. General practice was also seen as a better lifestyle option than other main specialties as well as offering flexible working opportunities.

New findings included the observation that career ranking for general practice improved following a four month postgraduate attachment in general practice among those less inclined to general practice as a career in the first place. Thematic analysis of transcribed interviews revealed enhanced respect, among foundation doctors, for general practice as a career option irrespective of their own eventual career intent. This improved regard for general practice among doctors intent on specialising may be important in the context of persisting disparagement of general practice by some students, clinicians and teachers. It may also be helpful in engendering mutual respect and more effective working relationships between specialists and generalists in the future.

Chapter 1: Introduction

1.1 Recruitment to general practice

Recruiting medical graduates to general practice (as well as certain other medical specialties) is currently a significant issue for health services internationally including the United Kingdom. In many countries there has been a decline in interest in general practice as a career choice over the last decade (McKee et al., 2007; Buddeberg-Fischer et al., 2008a; Thistlewaite et al., 2008a; Jeffe et al., 2010). Improvements in life expectancy have placed additional pressures on health care systems. There is greater emphasis being placed on managing illness in community rather than expensive hospital settings. The development of treatments that can be overseen and administered in primary care has added the therapeutic options available to general practitioners. It is envisaged, in the future, that more care will take place closer to people's homes under the umbrella of general practice and community based services. Health care planners in the UK anticipate that at least half of all medical graduates will be required to work in general practice and are planning changes in training configurations across all specialities that ensure such provision (Irish et al., 2010). This will entail reductions in training opportunities for some specialities as well as expansion in the available training programmes for general practice.

Currently less than a quarter of graduates express interest in general practice as a future career by the time they qualify (Lambert et al., 2006**)**. The mismatch between societal needs, in terms of specialist and generalist doctors, and the career preferences expressed by medical students and recent graduates, has increased interest in the mechanism and timing of career choices in medicine as well as specific factors that influence decision making.

1.1.1 Factors influencing recruitment to general practice

Evans et al. (2002) have identified several factors that contribute to poor recruitment and retention of general practitioners including

- portrayal by some hospital-based teachers of general practice as a second class career
- a perception of low morale among current general practitioners
- increased workload in primary care
- movement of rationing of care from Government to general practice (loss of patient advocacy role)
- growing public expectation

Those responsible for meeting future demands for increased numbers of general practitioners may face a formidable task in attracting doctors to careers in general practice. There is a need for greater understanding of career decision making processes among doctors during the early part of their professional lives including the impact of postgraduate exposure to a period of attachment to general practice.

1.2 Developments in postgraduate medical education

In recent years there have been significant changes in postgraduate medical education within the United Kingdom (Department of Health, 2004a). These have mainly focussed on reform of the Senior House Officer (SHO) grade and the introduction of a two year foundation training programme for all UK graduates, immediately following qualification. Foundation training replaced the year immediately following qualification as a Pre-registration House Officer (PRHO) as well as the first year as a Senior House Officer.

1.2.1 Foundation training

The concept of a foundation programme arose following an earlier Department of Health report *A Health Service of all the talents: Developing the NHS workforce* which showed that ‘career decisions by doctors in training were often made too hastily’ (Department of Heath, 2000). Reform of the SHO grade in particular has been seen as ‘long overdue’ with interest in developing this training grade stretching back over a decade (Dillner, 1993; Gallen & Peile, 2004).

The second foundation year has been designed to offer doctors an opportunity to sample a wider range of professional occupations than previously possible. Following qualification doctors now undertake an integrated, planned two-year foundation programme of general training

- the first year replaced the previous pre-registration house officer year
- the second (post-registration) year incorporated a generic first year of current SHO training
- the foundation programme leads on to specialist and general practice training

1.2.2 Postgraduate medical career paths

The connection between foundation training and subsequent general practice or specialist training is shown in Figure 1.

Figure 1 Postgraduate medical training

<table>
<tr><th colspan="3">F1 YEAR</th><th colspan="3">F2 YEAR</th><th>NEXT 3 YEARS</th><th>FURTHER TRAINING</th></tr>
<tr><td colspan="2">Medicine</td><td>Surgery</td><td>Speciality</td><td>Primary Care</td><td>Speciality</td><td>Run Through Grade</td><td>Further specialist training</td></tr>
<tr><td>Speciality</td><td>Medicine</td><td>Surgery</td><td colspan="3"></td><td>GP Training</td><td>GPs With Special Interests</td></tr>
</table>

1.2.3 Foundation year 2 general practice attachments

A four month general practice attachment as part of the second foundation training year was variably included in postgraduate training programmes throughout the UK. It was not a mandatory component of the second year. When foundation training was initially introduced nationally 55% of the second year programmes that ran in the Kent, Surrey and Sussex Deanery included a general practice attachment.

A typical programme contained a variety of teaching opportunities (Downey & Duncan, 2004).

- A two week induction period including computer training, sitting in on surgeries, home visits and community hospitals
- Twice weekly tutorials
- Attachments with all members of primary health care team
- Individual surgeries with 20 minute appointments
- A mini-audit
- Two chronic cases written up as a reflective learning piece examining patient use of health resources
- Video recording of consultation skills
- Attendance at local general practice vocational training scheme
- Protected time for completion of projects and reading
- Attendance at local consultant clinics with examination of quality and content of GP and consultant discharge letters
- Collection of evidence for portfolio (using RITA)[1] e.g. reading list, list of tutorials, cases, learning issues arising from work in the practice or on an attachment

1.3 Formulating the hypothesis

The main purpose of this study was to ascertain whether an attachment to general practice during the second foundation year influenced doctors' career choices. It was postulated that greater postgraduate clinical exposure to working in general practice would increase interest in general practice as a future career. The inclusion of general practice in a significant percentage of foundation programmes meant that some doctors whose early career intent was other than general practice would spend four months in a practice setting. For administrative reasons, and to ensure the feasibility of the foundation programmes nationally, the three four month attachments of the second foundation year were determined by Deaneries and could not be specifically tailored to

[1] The Record of In-Training Assessment (RITA) is a formalised assessment of a specialist registrar's (SpR's) progress towards the achievement of a Certificate of Completion of Training (CCT**).** It was adapted for use in foundation training.

the individual. It was possible for a qualifying doctor intent on a career as a gynaecologist to find that their second foundation year was made up of four months gynaecology, four months A&E and four months general practice. A degree of compromise with the two other components of their second foundation year may have been necessary in order to ensure a gynaecology attachment. Organised training paths such as these had not been previously tried and the effect on later careers cannot be confidently predicted.

In view of future medical manpower requirements of society, and the likelihood that many doctors initially opting for careers in specialities other than general practice will enter general practice it was thought important to collect the impressions and experiences of those whose first career choice was other than general practice as well as those who expressed strong interest in general practice at the outset. Besides measuring the effect on career preference of the four month attachment in general practice, the impact of the attachment on understanding of general practice, and how that understanding related to pre-existing beliefs and attitudes, was recorded. Career decision making is complex. Nabi et al. (2006) maintain that important career decisions being taken in isolation without reference to an individual's previous beliefs and understandings have little meaning. Qualitative data derived through interviews with participants were analysed in order to determine how career decisions are made, the factors that influence those decisions and the impact of previous experiences and career thinking on decisions made during the second foundation year.

1.4 Planning a literature review

In order to understand the context of career choice a review of the literature relating to career preference among medical students and practitioners was undertaken. The aim of the review was to define factors that influence medical students and doctors in their choice of medical career. An electronic search of the published literature in Medline and PubMed was conducted using Medical Subject Headings (MeSH) terms including 'medical career choices', 'medical career preferences', 'doctors career preferences', 'doctors career choices', 'medical careers' and 'family doctors', UK general practice career preference', 'doctors' career intent', 'postgraduate GP attachment' and 'influence

over career intent'. Articles were limited to those published in English. The search detected articles published after 1965.

Following screening of abstracts 530 papers were identified as of potential relevance to the study. These were read and formed the basis of the literature review. The search was repeated on a monthly basis throughout the study period and during the compilation of the thesis. This resulted in a further 38 papers being identified as of direct relevance to the study. Additional information was also derived from Department of Health and Royal College of General Practice publications, conference proceedings, dissertations, government reports and reports from other bodies including the British Medical Association (BMA) and the General Medical Council (GMC). Since health care systems vary considerably in structural terms the literature review was based on national and international experiences. Although there were similar challenges, the manpower requirements and training structures differed. The review initially focussed on general practice in the UK and the factors that influence career choice among medical students and doctors in the UK. This was followed by a review of the literature relating to published evidence from other countries with similar degrees of general practice development.

Chapter 2: General Practice in the UK

2.1 The nature and structuring of general practice

General practitioners manage 90% of all illness identified by patients as requiring the help of a health care professional. Their work is broad-based in contrast to the narrow interests of the specialist. Whereas hospital doctors are salaried and work to a national job description in a hierarchical structure, general practitioners are independent contractors to the National Health Service, who tend to be 'fiercely independent and entrepreneurial'. Their earnings depend on patient numbers and the range of services they provide. Their freedom has spawned a 'bewildering' array of practice types; small and large; rural, suburban and city based, and often engaged in training or research. As a group, family doctors have always formed a considerable proportion of the medical workforce. In the early 1980s almost 50% of all doctors in the United Kingdom were general practitioners (Rhodes, 1983). By 2007 there were 31,430 consultants and 30,936 general practitioners (excluding retained doctors and general practice registrars) working within the National Health Service (Information Centre, 2008).

From the inception of the National Health Service in 1948 it was possible to enter general practice immediately after a pre-registration, post-graduate year in an accredited teaching hospital, without any formal training in general practice itself. Whilst some doctors undertook periods of voluntary postgraduate training in various specialities as well as in general practice (in order to acquire the skills and experience they thought they needed for independent general medical practice), many did not. A minority had had experience of general practice during their undergraduate training.

The prescribed three year period of postgraduate training in general practice for all doctors wishing to work as independent general medical practitioners in the United Kingdom did not become a statutory requirement until 1981 (Hayden et al., 1996). However, the Vocational Training regulations required general practice trainees to spend two of their three year general practice training programmes as senior house officers in hospital training posts and only one year attached to a training practice. Bain (1996) stated that this new scheme was widely regarded as 'out of date' shortly after its

inception, and noted that selection criteria for training schemes were ‘slack’ and ‘almost invisible’. The Royal College of General Practitioners had originally recommended a five year scheme to properly equip doctors for independent practice as family physicians but had to compromise on three. Moreover, the two years that aspiring general practitioners spent in hospital posts were primarily ‘geared’ to the needs of those intending to specialise in hospital medicine, even though the posts themselves had been ostensibly approved for general professional training. Thus the final year of training in a general practice became significantly overloaded.

After completion of this limited vocational training, young general practitioners entered a ‘void’ with little structured support and ongoing education (Bonsor et al., 1998). They also had to choose between joining the ‘hidden hierarchy’ of partnerships or working as non-principals (part time practitioners, retained doctors or assistants). There was little career counselling or structured professional development to support young general practitioners in their early years in practice.

Some development in the general practice training system has taken place in recent years. More flexibility has been introduced with part time training proving increasingly popular. A few training schemes have extended their period of training to four years and some have increased the proportion of time trainees spend in training practices whilst shortening their time in hospital posts. General practice trainees have been renamed general practice registrars in order to more closely align with their contemporaries training in hospital-based specialties.

The training systems for specialists contrasted markedly with those for general practitioners. Doctors contemplating specialist careers spent two to three years as a senior house officer and worked to meet the entry grade for particular specialties during that time – usually the membership examination of the relevant Royal College. They then had to compete for selection to the training grade of specialist registrar. They were allocated a national training number and went on to complete a prescribed period of training (usually four to six years) before obtaining their certificate of completion of specialist training (CCST). During their training they had protected time for study and research and often acquired higher University degrees. After completion of their CCST

specialists had a period of six months ‘grace’ in their specialist registrar post whilst they sought posts as consultants.

Elwyn et al. (1998) emphasised the need for a reformed training career pathway for general practitioners similar to that for specialist registrars. He argued that there should be competitive entry requirements for training grades in general practice. He advocated introducing a six year training programme for general practice that included three or four years in a training practice with hospital attachments to support the acquisition of specific skills. General practice registrars should have protected study time for professional examinations and be enabled to pursue specific interests including research, education or commissioning. It was felt that not only did ‘general practice training need an overhaul’ but general practitioners themselves needed ‘a professional development framework’ as well as career guidance. The formal extension of general practice training to five years has yet to be achieved.

Following a major review of postgraduate medical training, a two year foundation training programme was introduced to replace the pre-registration year and the first year as a senior house officer (Department of Health, 2002). Foundation training also provided opportunities for a greater number of doctors to experience general practice in their early postgraduate years. The vision that all doctors would have foundation general practice experience has not been realised, but more doctors than previously can have a postgraduate attachment in general practice.

2.2 The supply and demand for general practitioners

As elsewhere in the world the United Kingdom has witnessed a decline in the popularity of general practice as an initial career option for medical graduates. Surveys of those who qualified in the 1970s and 1980s showed that over 40% of qualifying doctors were intending to pursue a career in general practice. However, by 1996 this figure had dropped to 20% (Lambert et al., 1996). Lambert et al. (2006) later undertook a questionnaire survey of all 2002 UK medical graduates (n= 4257 with a 65.3% response rate), four years post qualification and found that 22.7% (28.1% of women and 14.5% of men) expressed ‘a preference for a long term career’ in general practice. There was a significant mismatch between the percentage of senior doctors working in the NHS as

GPs (51% of the total medical workforce) and the 22.7% of the 2002 cohort aiming to be GPs. Similarly, 23% of the 2002 cohort wished to pursue a career in hospital medicine but only 11% of senior doctors were in substantive hospital posts.

Career choices were also affected by medical school with 11.2% of Oxford and Cambridge graduates and 20.9% of London graduates choosing general practice compared to 26.4% of graduates from the rest of the country. The authors highlighted that only 1 in 4 women and 1 in 7 men chose general practice at this stage of their career. More recent work, however, has shown that views about becoming a general practitioner change significantly over time. Jones & Fisher (2006) ten year longitudinal study of career patterns, which commenced in 1995, found that, immediately after qualifying, 18% of their sample of 3500 final year medical students had decided on a career in general practice. However, by 2004, this proportion had increased to 33% with 243 doctors changing to general practice from another career path. The main reasons for changing career paths were ‘hours of work’ (81%), ‘domestic circumstances’ (44%) and ‘career and promotional aspects’ (27%) (Figure 2).

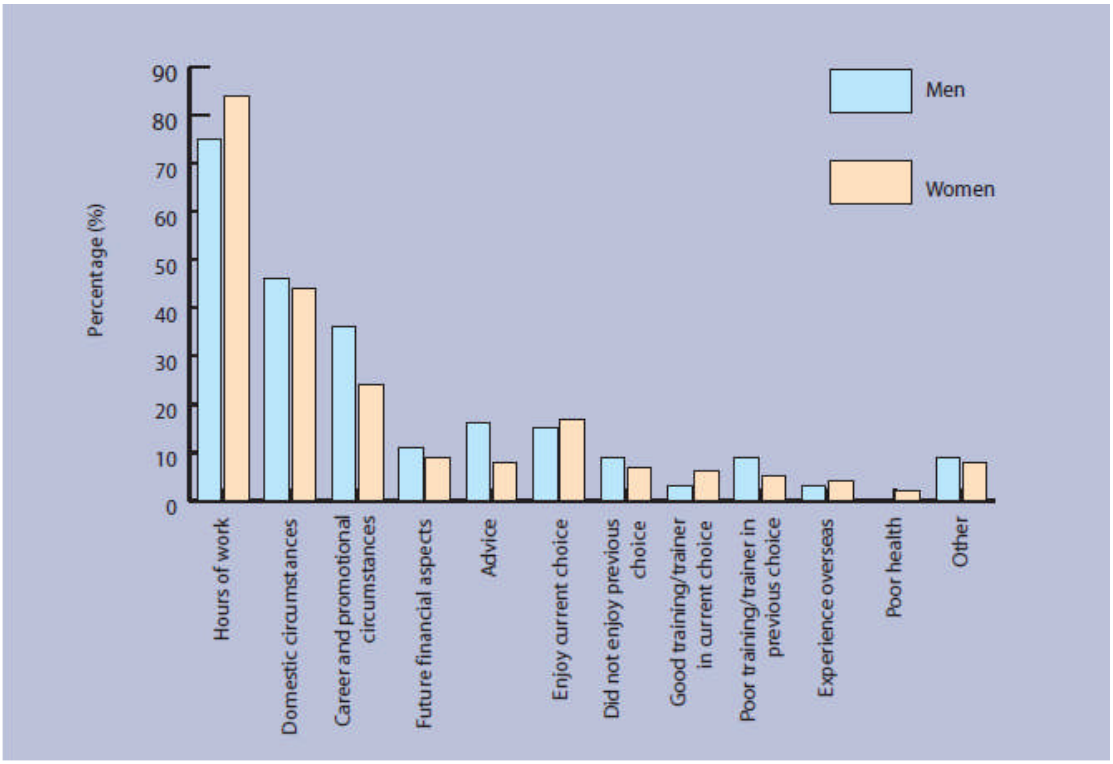


Figure 2 Reasons for changing to general practice from another initial career preference (More than one reason may apply)

Jones, L. & Fisher, T. (2006), Workforce trends in general practice in the UK: results from a longitudinal study of doctors' careers, *British Journal of General Practice*, **56**: 135.

The researchers noted that ‘although general practice is initially unpopular as a career choice, it became popular in subsequent years’ (Figure 3). This runs counter to contemporary views that general practice is unattractive to medical graduates on a long term basis.

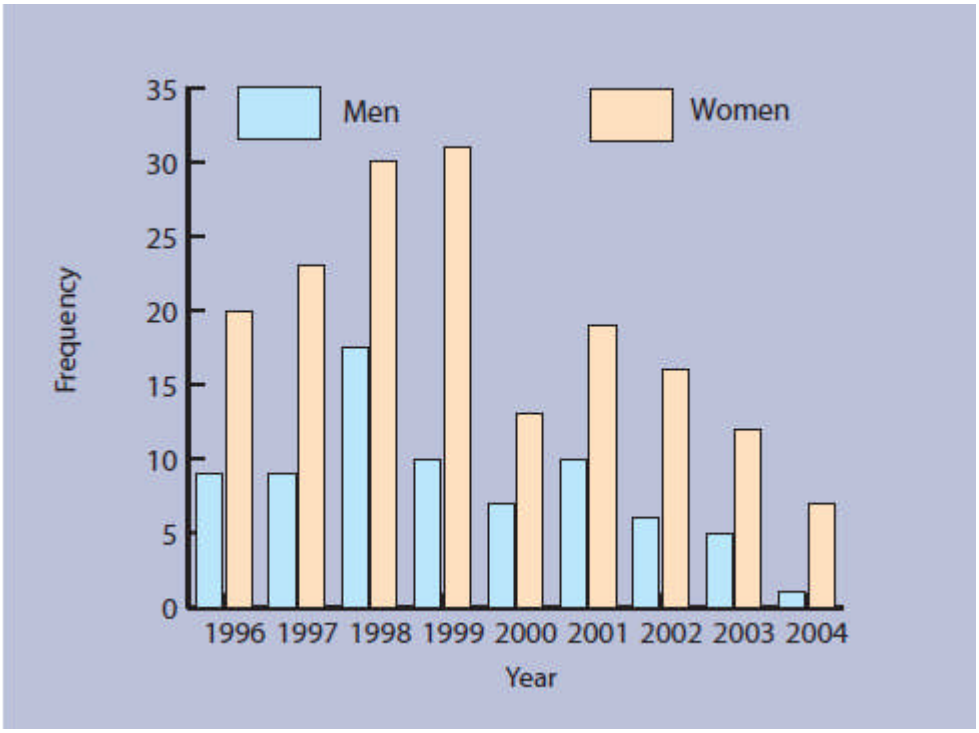


Figure 3 Number of doctors changing career preference to general practice for each year following graduation in 1995

Jones, L. & Fisher, T. (2006), Workforce trends in general practice in the UK: results from a longitudinal study of doctors' careers, *British Journal of General Practice*, **56**: 135.

UK policy over the last decade has been to substantially increase the number of graduate entrants to medical schools. Early studies suggested that graduate entrants to general practice were more likely to seek a career in general practice than their non-graduate contemporaries (Lambert et al., 2001). However, Goldacre et al. (2007) found that there was only a 'modest' increase in direct entry graduates seeking a career in general practice, and this was too small to dramatically improve recruitment to general practice. Graduate entrants were more likely to cite 'domestic circumstances' as significantly influential in career choice terms – particularly for those opting for general practice. Graduate entrants were also more likely to express a career preference before medical school. This applied across a range of specialties. Non-graduate entrants who had completed an intercalated degree were more likely to be influenced by career or promotion prospects than domestic considerations.

Evans et al. (2002) studied career satisfaction among medical practitioners later in their professional lives and found that older general practitioners were less satisfied than their hospital colleagues or those who worked abroad. They felt this was due to organisational changes that impacted more heavily on primary care and involved senior family doctors in significant role modification. Other work has not confirmed significant dissatisfaction among general practitioners compared to other specialties (Davidson et al., 2002).

2.3 Gender and general practice career choice

Ward (1982) surveyed the medical careers and working patterns of two groups of medical women 12 years and 28 years following qualification in the United Kingdom. On aggregate, 91% were practising medicine at the time of the survey in 1977. Equivalent figures she cited for other professions included accountants (89%), dentists (85%), physiotherapists (55%) and teachers (41%). Although fathers were contributing more to childcare and helping in the home among the later qualifying group she concluded that 'it is still the mother who has the greater responsibility' for these roles. She stated that 'women who have had a medical education generally seek to use their training as best they can' but that they can be at a 'disadvantage in a calling that follows a masculine career model'. The compulsory requirement of three years vocational training in general practice, containing two years spent in hospital posts, was regarded as discriminatory against women with children. Cost of child care often exceeded half the income of a junior hospital doctor. Making arrangements for suitable child care cover was compounded by long working days and on call commitments in evenings and at weekends.

The high percentage of women remaining active in the medical workforce was also noted among women graduates of St Mary's Hospital Medical School between 1961 and 1972 (Shaw, 1979). At the time of the survey in 1979 38% were in fulltime work, 47% in part time work and 15% not practicing. 38% of those with children under school age were not working but 90% of them returned to medicine, mostly in part time roles. More women chose general practice as opposed to hospital medicine since there was limited opportunity to work less than full-time in the clinically based specialties.

In a review of career aspirations of women doctors qualifying in 1974 and 1977 from United Kingdom medical schools Rhodes (1989) noted that patterns of career choice were very different between men and women. Men favoured medicine and surgery whilst women opted for community medicine and general practice. This was attributed to differing family and marital pressures. It is important to realise how perceptions of career opportunities in hospital medicine and general practice differed between genders in order to understand the pragmatic nature of career decision making in medicine.

McManus & Sproston (2000) gathered data on career paths of female hospital doctors from several sources, including Department of Health reports, Royal Commissions and peer reviewed published papers, over three decades from 1966. They found that the proportion of women in hospital career posts had increased less than the proportion of women entering medical school. Although little objective evidence of 'disproportionate promotion' of women in hospital careers was evident, few female juniors seemed to progress in medicine, surgery and obstetrics and gynaecology. The possibility of discrimination , either direct (not being appointed by selection committees, refusal to promote and active 'disparagement') or indirect (being persuaded not to apply for a post, inappropriate working conditions, subtle denigration and faint praise – 'Salieri effect', inadequate support from seniors or maltreatment) remained. In addition it was argued that differential choice (entering a particular specialty because of perceived problems in progressing in other specialties) might play a significant role in career choice among female doctors. Discrimination and differential choice contribute to the 'glass ceiling' for aspiring women doctors described in the literature (Tesch et al., 1995). Lefford (1987} observed that the proportion of female consultants in 'Cinderella' specialties such as pathology, psychiatry and radiotherapy had increased in line with the increase in female graduates whilst senior appointments to the three main specialties of surgery, medicine and obstetrics and gynaecology had not followed suit. It was suggested that 'being a female is a handicap to achieving consultant status, particularly in the popular specialties'. In addition it was felt that 'people who are working in careers where they wish to be working are more likely to be satisfied, productive, effective professionals, than those who feel they have been marginalised or coerced into a specialty that is not of their own choosing'.

When investigating recruitment patterns to general practice Lambert et al. (2002) found that a much higher percentage of women entered general practice in the later years of their research, with approximately half working part time (Figure 4).

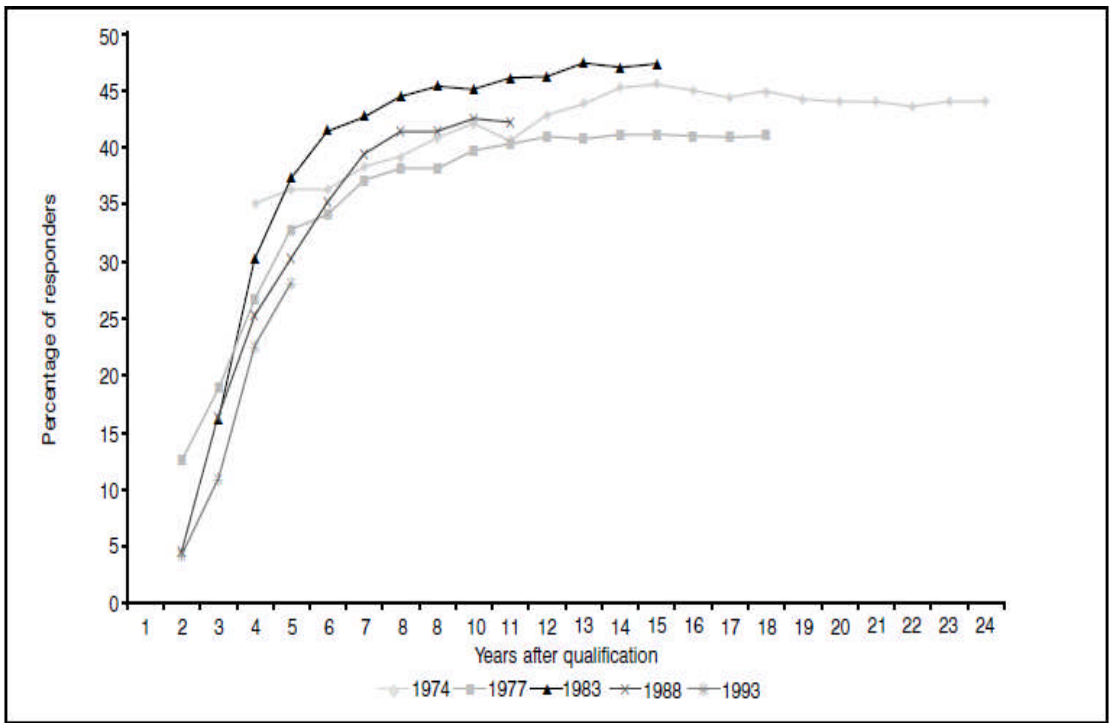


Figure 4 Percentage of female UK NHS GP responders working less than full-time

Lambert, T. W., Evans, J. & Goldacre, M. J. (2002), Recruitment of UK-trained doctors into general practice: findings from national cohort studies, *British Journal of General Practice*, **52**: 366.

Fewer men entered general practice in the later cohorts, with a rise in the percentage working less than fulltime (Figure 5).

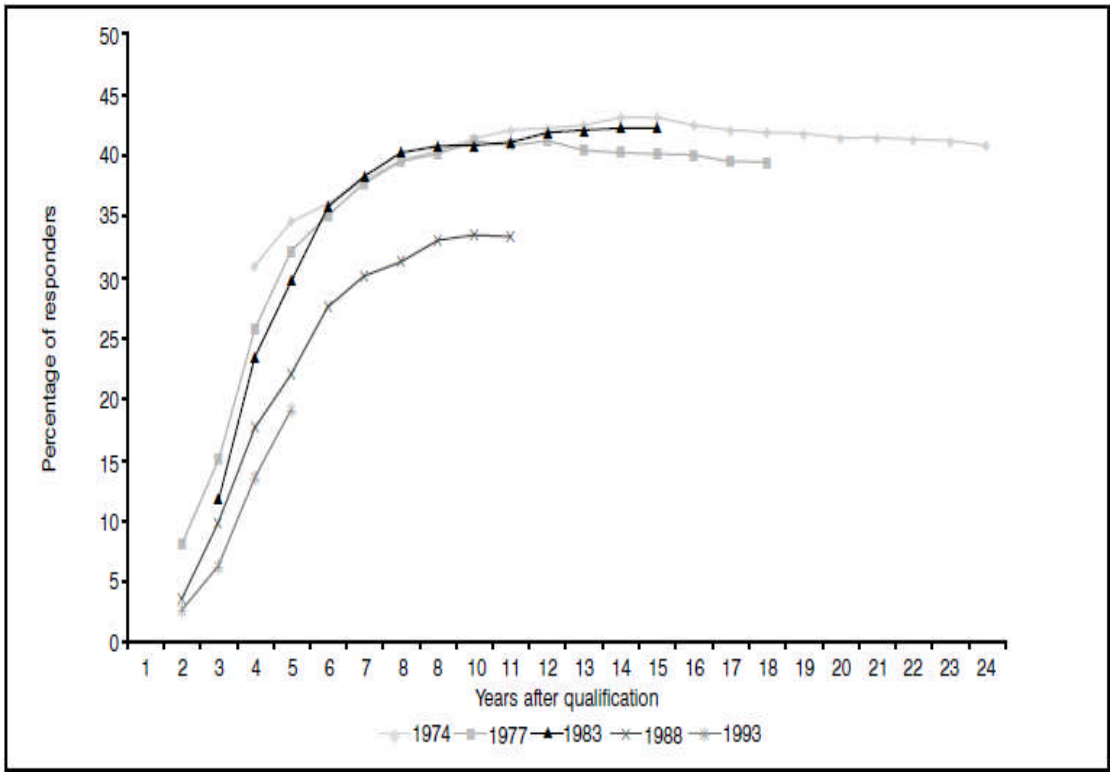


Figure 5 Percentage of male UK NHS GP responders working less than full-time

Lambert, T. W., Evans, J. & Goldacre, M. J. (2002), Recruitment of UK-trained doctors into general practice: findings from national cohort studies, *British Journal of General Practice*, **52**: 366.

With the 'gender balance' now in favour of women in UK medical schools the importance of gender on life choices, and subsequent medical manpower requirements, has been identified (Allen, 2005). Hitherto traditional adherence to the belief that long hours and lengthy, unstructured, training periods are necessary to produce competent doctors has inhibited female doctors' progress with many of the brightest graduates unable to access senior positions; but the significant increase in the proportion of women medical students and doctors is bound to impact eventually on the male dominance of the profession. The 'M' shaped career distribution of female doctors is well recognised with a peak in the early years, a dip in the middle and a peak in later life. Increasing training opportunities have been made available through flexible training schemes and there is some recognition that more unconventional career paths are becoming increasingly acceptable when applying for senior positions. Implementation of the European Working Time Directive has also accelerated the adoption of more acceptable working patterns. In general practice the proportion of women in the

workforce increased from 19% to 38% in the decade following 1983 (Department of Health, 1994). Those who maintained their practice, when raising a family, tended to increase their hours of commitment when their children had became more independent. However, over the subsequent decade, the proportion of women principals working part time fell from 73% to 53% (Department of Health, 2004b). This was in part due to changes in contractual arrangements that militated against flexible working patterns within partnerships, as well as the rising popularity of salaried posts for those seeking defined hours of work in clinical practice.

A study of career intent among medical students and pre-registration house officers in Aberdeen found that women relinquish academic and specialist pathways in order to meet the needs of their families (Sinclair et al., 2006). It was reported that those choosing general practice were more likely to be female, live in Scotland and make career decisions earlier. Women were as confident of their academic abilities as their male peers. Both genders felt career decisions were influenced by 'positive experiences of primary care (and/or less favourable experiences of secondary care) during undergraduate placements'. Other reasons for expressing a preference for general practice included continuity of patient relationships, variety of illnesses and increased awareness of part-time working opportunities.

French at al. (2006) explored the link between gender contractual differences and job satisfaction among Scottish general practice principals, including those in dual-doctor households. Males worked more hours than females and did more out of hours on call and non-NHS work. Female GPs reported greater professional satisfaction than male GPs, but differences disappeared when both genders worked similar hours following the introduction of the 1991 New Contract for general practice. More males tended to have a long term partner/spouse (94% male versus 85% female) and were less likely to take their annual leave allowance. Females with children worked fewer hours than their male colleagues (male 51 hours versus female 37 hours per week). Females with no children worked fewer hours than males but the difference was less pronounced than in those with children. Interestingly, males in dual-doctor households reported that they were 'more likely than other males to have modified their working hours or career aspirations for the sake of their spouses' whereas female respondents in dual-doctor households

reported that their spouses were less likely to adapt to their working patterns than those not in dual-doctor households.

Drinkwater et al. (2008) undertook a qualitative study of gender on medical students' career intent involving six male and six female students in the third and fourth year of their undergraduate training at Manchester University. A female interviewer, using semi-structured exploratory techniques, found marked differences between how men and women balanced career aspirations and family life. Women were far readier to compromise careers in order to achieve a 'work-life balance'. Social stereotypes predominated with men being seen as 'breadwinners and women as mothers'. There was a shortage of 'successful' female role models. Men were seen as 'leaders and full time workers and women as followers and part time workers'. The researchers recommended 'positive career guidance' in order to help redress the lower career expectation reported by women in the study.

Taylor et al. (2009) surveyed the career progression of over 7000 men and women doctors in the NHS and found distinct differences between genders. Those who worked part time, mainly women, progressed more slowly than their predominantly male full time counterparts. General practice was the career destination of 56% of the women working part time in medicine; and the authors argue that over-representation of women in general practice is strongly associated with part time working.

2.4 Timing of career decision

Henderson et al. (2002) investigated attitudes to general practice as a career among London medical students. Key attitudinal constructs were derived from two focus groups of fourth year medical students (Figure 6). A questionnaire was then designed to test various aspects of the constructs. The constructs were:

- Student attitude to general practice as a specialty, apparent job satisfaction and doctor patient relationships.
- Student attitudes to GPs (as opposed to specialists) as doctors including personality, intelligence and status.

- Factors that influenced attitudes including direct experience of general practice and general practice teaching courses, the impact of the media and influences of friends and families.
- Degree of intent to follow particular careers including anaesthetics, medicine, obstetrics and gynaecology, research, paediatrics, surgery and general practice.

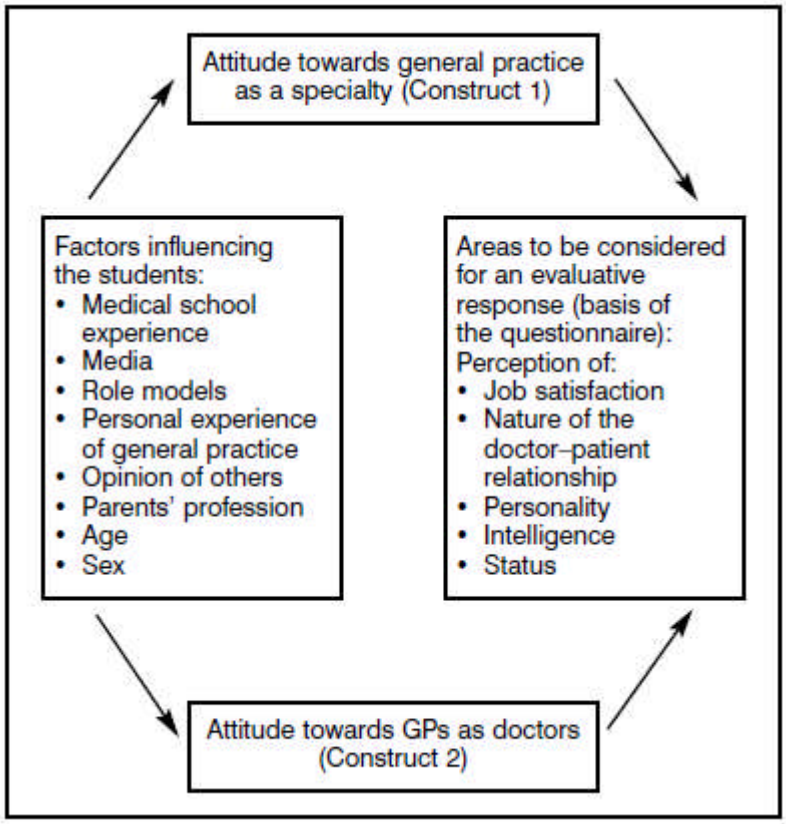


Figure 6 Conceptual frameworks of the attitudes of medical students towards general practice and GPs

Henderson, E., Berlin, A. & Fuller, J. (2002), Attitude of medical students towards general practice and general practitioners, *British Journal of General Practice*, **52**: 360.

700 first and fifth year students from two London medical schools completed the questionnaire (72% response rate). Student attitudes to general practice differed significantly from the first year to fifth year with an increase in intention to pursue general practice as a career (Table 1).

Table 1 Differences between the first and fifth year students and between genders

Variable	Year 1 Score (95% CI)	Year 5 Score (95% CI)	Male Score (95% CI)	Female Score (95% CI)
Overall attitude towards general practice	3.64 (3.59–3.68)	3.83 (3.79–3.87)	3.64 (3.60–3.70)	3.81 (3.77–3.85)
Attitude towards GPs as doctors	3.55 (3.50–3.60)	3.69 (3.65–3.73)	3.55 (3.50–3.61)[a]	3.69 (3.65–3.73)[a]
Attitude towards general practice as a specialty	3.76 (3.71–3.81)	4.03 (3.98–4.08)	3.78 (3.72–3.84)	3.99 (3.94–4.05)
Intended career as a general practitioner	2.56 (2.44–2.69)	2.91 (2.78–3.05)	2.48 (2.36–2.62)	2.96 (2.82–3.09)
Intended career in obstetrics and gynaecology	2.58 (2.45–2.70)[a]	2.23 (2.09–2.37)[a]	2.15 (2.01–2.29)	2.62 (2.49–2.75)
Intended career in paediatrics	3.37 (3.23–3.50)[a]	2.56 (2.43–2.70)[a]	2.79 (2.64–2.94)	3.11 (2.97–3.25) $P = 0.002$
Intended career in surgery	3.21 (3.07–3.36)[a]	2.53 (2.37–2.69)[a]	3.37 (3.21–3.53)	2.41 (2.26–2.59)
Influence of the media	2.74 (2.64–2.85)	2.46 (2.36–2.56)	NS	NS
Role models and personal experience	NS	NS	3.73 (3.63–3.80)	3.96 (3.89–4.04)

[a]Test used was Mann–Whitney U (in all other cases test used was one way ANOVA). $P<0.001$ for all cases except where the P value is stated. NS = non-significant.

Henderson, E., Berlin, A. & Fuller, J. (2002), Attitude of medical students towards general practice and general practitioners, *British Journal of General Practice*, **52**: 361.

This was the only specialty in which such a change was noted. Students 'believed' that personal experience of general practice was very important in influencing their career decision. The media was cited as a predominant influence in first year students thinking about general practice. The authors suggested that greater exposure to general practitioners at medical school may positively influence students towards general practice. However, they also acknowledged the limitations of a cross sectional study as well as possible bias introduced by the questionnaires being distributed by known general practitioners. By contrast Petchey et al. (1997) and Morrison & Murray (1996) reported a less positive attitude towards general practice by medical students and suggested that the impact of exposure to general practice during an undergraduate attachment may not have a sustained positive effect of preference for that specialty.

Rowsell et al. (1995), in a qualitative study of career intent among general practice registrars in the South West region of England, confirmed general ongoing interest in pursuing a career in general practice but revealed many concerns. Enjoyable aspects included 'appreciation of the relationship between patients' problems and their family and social circumstances'. Registrars valued treating the patient as a whole;

> Helping people through difficult problems, seeing different members of a family with their problems in their own environment and the continuity it brings. This is real people and real medicine in the way hospital work can never be.

Some cited the variety of general practice as exciting with the ‘breadth of clinical challenge’ attracting them most. Others valued their independence and their ‘autonomy with patient management’. For many working as part of a team and being involved in a community undertaking was fulfilment in itself.

On the negative side high workload, imposition of government directives, out-of-hours commitment, fear of litigation and unreasonable patient demand and expectation were clearly identified factors. There were comments on a ‘sense of isolation’ and lack of social life in general practice compared to hospital jobs. The negative attitude of hospital doctors to general practice was seen as a significant drawback and was linked to a general ‘lack of respect of general practitioners’. There was an overall ‘fear of commitment’ among registrars. To some extent this related to the pervading uncertainty about general practice careers that existed at a time when the government appeared to be constantly ‘changing the goal posts’. Career decision making was seen as a process in which general practice registrars ‘weighed up carefully the impact of work on their personal lives’.

DeForge et al. (1993) recognised that many doctors make career decisions after they have completed their undergraduate education. A survey of career intent among general practice registrars in the Thames deaneries in 2000 showed that, in fact, almost two thirds of doctors had chosen general practice after qualifying (median of three years since graduation) (Bowler & Jackson, 2002).

Whilst some studies suggest that career intent at entry to medical school and experience of general practice during training impact on eventual career paths, other work points to the importance of decisions made after qualifying. Goldacre & Lambert (2000) examined stability and change in career choice among doctors one to three years after qualifying. Career choice remained unchanged for 74.1% of doctors between years one and three post qualification. In the quarter of the 1993 qualifiers who changed career, anaesthetics, accident and emergency medicine, general practice and psychiatry proved the most frequent choice at the expense of surgery, medicine and obstetrics and gynaecology. Whilst some of the loss to surgery and medicine may relate to competitiveness for early training places, the researchers found that, over two decades, there was a reduction in the number of doctors making early choices for hospital

medicine and then changing to general practice. This was thought to reflect more formal entry requirements to general practice as well as a decline in the popularity of the specialty. Information about the certainty of career choice was also sought in questionnaires. Doctors were asked to describe their choice as ‘definite’, ‘probable’ or ‘uncertain’. The ratings were 31%, 48% and 21% at one year post qualification and 47%, 41% and 12% at three years respectively. Men were more certain than women of their career choice three years after qualification (50% versus 44%). However, even at three years, over half the respondents did not regard their career choice as definite.

With a quarter of doctors changing their career decisions between years one and three post qualification and less than half being definite about their career choice it is argued that flexibility in career terms is required ‘well beyond the first post-qualification year, to accommodate changes of choice’. Davidson at al. (1998), in a large retrospective study of United Kingdom medical graduates who qualified in 1977, revealed much more certainty of career choice. Of the 727 general practitioners surveyed 61% had chosen general practice as a career one year after qualification, 82% three years after qualification and 88% five years after qualification.

Howe & Ives (2001) investigated the impact of a prolonged community based attachment on the career intent of 260 third and fourth year medical students. He found that those experiencing a year’s placement in a community setting were more likely to choose a community based career. This was particularly evident among female students but less apparent among those from outside Europe. By contrast those attached to hospitals during this time – especially males – were more drawn to careers in hospital medicine.

Johnson et al. (1998) found that career paths of general practitioners only became stable about four years after completion of general practice training. Information was collected, in respect of current work status, intended career path, part time training experiences and factors that had hindered career choice, from 926 doctors in three Regions. As with previous similar studies (Kelly & Murray, 1991; Osler, 1991; Johnson et al., 1993) virtually all responders were employed, with women less likely to be working as principals. 90% of men and 70-75% of women ultimately worked in general practice but it took four years to reach these figures. In addition the proportion of women on

maternity leave peaked shortly after completion of vocational training. Whilst the period from completion of training to substantive employment predominantly reflected limited opportunities in terms of salaried posts available at the time and general reluctance to become principals directly after training, factors such as feeling of lack of preparedness for independent practice, difficulty choosing practices and reluctance to engage in out of hours responsibilities were also thought to influence early decision making.

2.5 Career advice

Matching career aspirations to manpower requirements of health systems remains problematic. In order to attract doctors to careers in specialties with recruitment difficulties it is necessary to understand factors that influence career decision making, including the role of career advice. Lambert et al. (1996) studied career preferences among UK graduates in 1993. The investigators asked 3657 respondents to rate career choice factors from a checklist. Enthusiasm and commitment as well as 'self appraisal of own skills' were rated highest whilst financial aspects were ranked lowest. Those selecting general practice often did so before medical school and tended to be less influenced by the experience of specific teachers or departments than by their specialising colleagues. In addition, aspiring family doctors rated working conditions and domestic circumstances higher than other groups.

In a postal survey of medical graduates between 1988 and 2002 Lambert & Goldacre (2007) investigated whether doctors wanted career advice, whether they had been able to access useful advice just after qualification and, in the case of older doctors, whether career advice had been available. Data were collated from three attitudinal statements:

1. 'It is important to be given career advice at this stage of training'
2. 'I have been able to obtain useful career advice since graduation'
3. 'Making career choices has been made difficult by inadequate career advice'

In addition doctors were asked to specify three career choices in order of priority.

Among house officers the case for career advice in the first year of postgraduate training and work was regarded as 'overwhelming'. The need for advice was greatest among

those who were most uncertain of their career choice. This group also reported less availability of advice. The lack of career advice was felt not only among the newly qualified but also among those at later stages in their professional life. When asked whether career choices had been made difficult by inadequate career advice 44% agreed at three years post qualification, 36% at five years and 28% at eleven years. There could be several explanations for this trend including changing domestic priorities, increasing influence of personal experience and attitudinal differences between the cohorts. Nevertheless the finding that at least a quarter of graduates cite lack of career advice as a factor contributing to career choice difficulty is significant.

The quality of career advice offered is integral to developing successful clinical working lives. Chambers et al. (2003) investigated career advice services in the NHS in the 1990s and showed that they 'were patchy' with few junior doctors, general practitioner registrars, or established doctors having access to well informed, impartial career advisers. In arguing for better career services a distinction is drawn between career guidance and career counselling. Guidance consists of prescriptive information about opportunities available, whereas counselling involves identification of individual strengths with a view to tailoring career choice correspondingly. A career service needs to be 'available, accessible, appropriate, accurate, impartial, confidential', as well as performed by those who are trained in career counselling and aware of gender and ethnicity issues.

Mahoney et al. (2004) investigated career intent in relation to stage of career. She recorded career intent among medical students in the fourth year of their undergraduate studies and later on as pre-registration or senior house officers. Of the 234 study participants 38.9% recorded definite intent, as medical students, to pursue a particular specialty whereas 63.3% did this later, as pre-registration or senior house officers. Although the number of doctors contemplating a career in general practice or psychiatry did increase, the increase was less than in other specialties and was not sustained. The authors suggested that improved career advice in early post qualification years could help doctors to maintain their pursuit of the careers to which they were originally drawn.

2.6 Changing career decisions

Perceptions of general practice by medical students can potentially influence their subsequent career paths. Petchey et al. (1997) interviewed 54 junior hospital doctors and asked for their perceptions of general practice as a career. General practice was regarded as inferior to hospital medicine in terms of its clinical content but superior in terms of work-life balance. The decision to pursue general practice often came from negative judgements, and subsequent rejection, of other career paths.

Whilst positive attraction to general practice is an important determinant of long-term career choice, reasons for rejecting initial specialty choices also play an important role. Lambert et al. (2003a) gathered career questionnaire data from all UK graduates between 1996 and 1999 during their pre-registration year. Study participants were asked (1) to list career choices they had 'seriously considered and rejected' and (2) to provide reasons for doing so. 33.1% of the 1871 doctors in the study reported a rejected career choice and gave associated reasons. Few doctors rejected general practice after giving serious thought to their choice, whereas many rejected surgical and medical specialties, with quality of life issues and poor career prospects being dominant reasons. The implication from these findings of declining levels of recruitment to general practice was that few doctors considered general practice as their preferred career option, in the first place.

Attracting more doctors to National Health Service general practice has been a long term priority of health care planners. Lambert et al. (2003b) suggest that general practice needs to appeal to established specialists, those in specialist training grades and overseas medical graduates as well as UK graduates already planning to train as family doctors. Lloyd & Leese (2006) studied changing career intent among general practice registrars (n=347) in the Yorkshire deanery. Several had originally planned alternative career paths to general practice including general medicine (n=53), paediatrics (n=14) and surgery (n=10). Reasons for changing to general practice included quality of life and working conditions, pressure and discomfort in specialties and enhanced interest in primary care. There was strong interest in teaching and sub-specialisation. Two thirds of female and just over a quarter of male general practice registrars planned to work part time. Many female registrars expressed a wish to work as salaried employees initially

and to become principals at some time in the future. They wanted to exert influence in decision making and to have occupations that were stable, flexible and varied. However, most did not want much management involvement or responsibility and found the personal commitment of principals of ‘particular concern’. The need to stay in one geographic area, initially determined by their place of medical undergraduate training, was particularly strong among the half of registrars who were married.

Lloyd & Leese (2006) also recommended expansion by practices and primary care trusts of the number of fulltime and part-time flexible posts in order to retain general practice registrars in family medicine. They identified that provision of teaching opportunities and sub-specialty training was attractive to these practitioners, and that structured career guidance to help them benefit from enhanced working opportunities needed to be more readily accessible.

Woodcock (2006) reported changing attitudes to family medicine among doctors undertaking foundation year 2 training that included a placement in general practice. One doctor recorded his personal reflections in terms of initial career aspirations:

> When I started in medical school I wanted to work in hospitals. Throughout medical school, among my peers and the staff of the hospitals, the general opinion (and I’ll be honest I fell into this category) was that GPs were looked down upon. To become a GP was almost seen as a ‘last resort’ for those who were not clever enough, ambitious enough or hard working enough to become consultants. Either that or it was a role for women who wanted to work part-time so that they could have lots of children. It was not the job for the young enthusiastic medical student/junior doctor with high aspirations and ambitions (Woodcock, 2006, p. 895).

After two months in general practice, during his foundation year 2, the same doctor reported a significant shift in his views;

> The lifestyle, the variety, the patient contact, and for me, the fact that patients who come through the door are people and not simply diseases needing to be treated, as it is all too easy to think of them when in hospital, are just four of the reasons why foundation year 2s are considering making the turn to the ‘dark side’ (Woodcock, 2006, p. 895).

Chapter 3: Factors influencing career choice in the UK

3.1 Factors influencing career choice prior to undergraduate medical training

The factors that influence career choice among students prior to undergraduate medical training are of interest to academic institutions, universities, health service planners and clinicians. McManus et al. (2006) investigated 'prime motivators' for applying to study medicine among potential medical students by clustering motivating factors under five headings: personality, empathy, stress, learning styles and academic achievement. His research team then developed a Medical Situations Questionnaire, covering nine medical specialties (surgery, medicine, psychiatry, general practice, radiology, anaesthetics, research, obstetrics and gynaecology and public health) by using 'a series of concrete medical situations described in clinically realistic case vignettes'. Study participants were asked to place themselves in the situations described and rank order the appeal of three different aspects of each scenario. They were then asked to rank order the vignettes. In so doing they expressed a preference for a particular career path.

Exploratory factor analysis revealed four factors; *indispensability* (tended to be male with lower grades and be more strategic), *helping people* (tended to be non-ethnic females and had more empathy), *respect* (younger with higher grades, lower desirability scores and higher stress scores) and *science* (tended to be males, from ethnic backgrounds, with lower desirability scores and higher stress scores). Interesting causal effects of variables are seen in this study. Males are more likely to want to be indispensable, to be scientists and less likely to want to help people than their female colleagues. Those from ethnic backgrounds had lower need to help others, higher GCSE grades, greater interest in science and more marked neuroticism and personal stress. Students achieving higher GCSE grades had greater need of respect in later life. McManus (1982) had previously found that social class, in line with other research, had only an indirect effect through lower academic achievement. Those coming from medical families demonstrated no discernable differences in terms of generic motivation.

3.1.1 The influence of A level grades

Ferguson et al. (2002) found that A level performance alone was not a reliable predictor of performance at medical school. They proposed that a test of intelligence (AH5 intelligence test) should also be included, since achievement tests could be adversely affected by poor schooling, absent role models and low expectations. McManus et al. (2003) studied clinical medical students (n=511) at the Westminster Hospital between 1975 and 1982 and compared A level performance with a test of intelligence to assess which was the best predictor of later performance. The argument for including a test of intellectual ability was that outcomes included postgraduate qualifications, research publications, measures of stress and burnout as well as time taken to reach senior positions in hospital medicine or general practice. 47 doctors had dropped off the medical register for various reasons and were found to have lower A level grades than those who remained. Data were obtained on 332 doctors. 173 worked in hospitals (149 were consultants) and 131 worked in general practice (116 were principals). Hospital doctors had higher A level grades than general practitioners. Those with higher 'A' levels took shorter time to acquire membership of their respective Colleges (Figure 7).

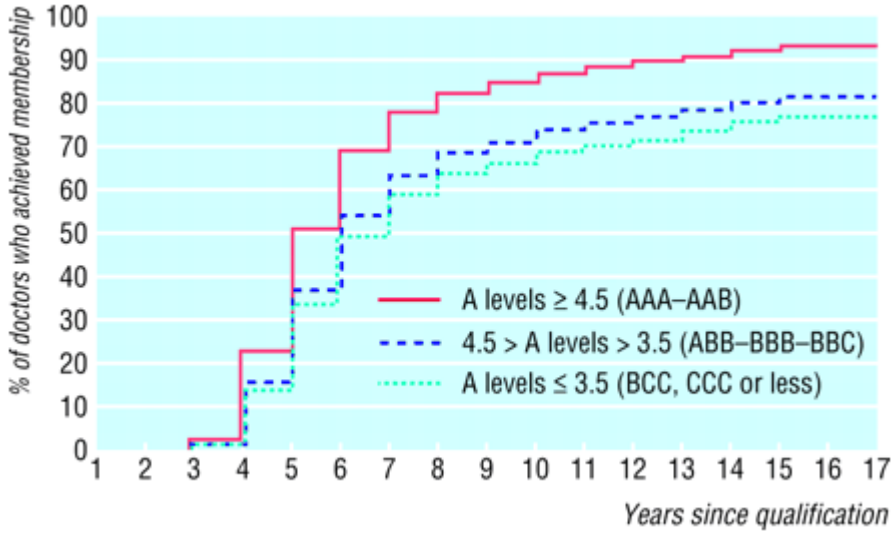


Figure 7 Kaplan-Meier plots for percentage of doctors obtaining membership in relation to A level grade, after taking hospital/general practice differences into account

McManus, I. C., Smithers, E., Partridge, P., Keeling, A. & Fleming, P. R. (2003), A levels and intelligence as predictors of medical careers in UK doctors: 20 year prospective study, *British Medical Journal*, **327**: 141.

However A level grades did not predict whether or not doctors eventually gained membership of their College or experienced burnout in their clinical practice; and. the AH5 had little predictive value for medical careers. So the authors proposed a pathway linking different educational achievement before, during and after undergraduate training (Figure 8).

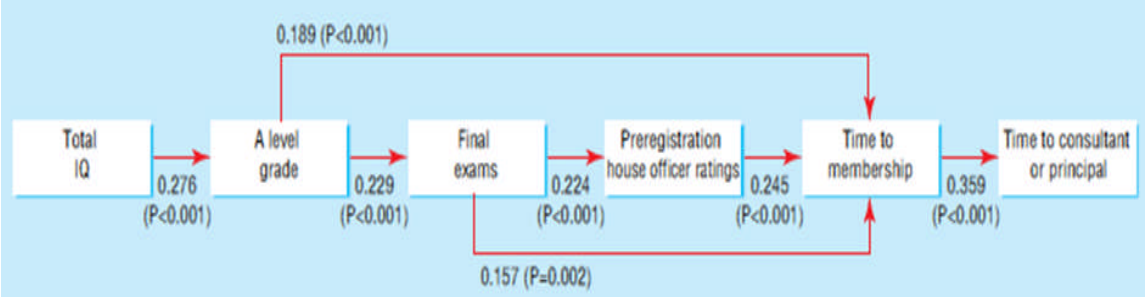


Figure 8 Path model of causal associations between different educational achievements of doctors. Coefficients represent standardised path coefficients with their associated significance levels

McManus, I. C., Smithers, E., Partridge, P., Keeling, A. & Fleming, P. R. (2003), A levels and intelligence as predictors of medical careers in UK doctors: 20 year prospective study, *British Medical Journal*, **327**: 142.

They argued that ‘A’ levels represent achievement and could predict time to membership, choice of career (general practice versus hospital medicine) and chances of leaving the register. However Myerson (2003) criticised the study for restricting the definition of career success to ‘rapid career progression, greater research output and opting for hospital based practice’. He maintained that there was little information, for instance, to support the assertion that a doctor who became a consultant earlier was a better clinician than their more slowly progressing colleagues or that the number of research papers generated necessarily reflected the usefulness of the research. He also suggested that some other outcomes in the study were correlated more closely with personality and learning styles, but the authors did not include these findings in their publication.

3.1.2 The influence of learning styles

Learning styles in medical school have been found to relate closely to personality measures and training outcomes. Medical students at Flemish medical schools who scored highest on conscientiousness achieved significantly better final scores in each clinical year, whereas those with low conscientiousness scores and high gregariousness and attention-seeking scores were likely to be less successful in examinations (Lievens et al, 2002). McManus et al. (1998) investigated the relationship between learning styles and medical student academic performance. He defined learning as either surface (rote learning of facts and ideas but with little real interest in content), or deep (ability to relate ideas to evidence, integrate material across courses and identify general principles), or strategic (using techniques that achieve the highest grades but lead to patchy or variable understanding). He studied applicants who had applied for admission to St Mary's Hospital Medical School in 1981 and 1986. Both study cohorts were asked to complete an 18 item study questionnaire which assessed surface, deep and strategic learning. The results showed that performance in final examinations did relate to deep or strategic learning styles among final year students and that knowledge acquired as a clinical student could be predicted from learning styles evident at the time of admission to medical school. Such knowledge gain, however, could not be predicted on 'A' level results alone. Peile & Carter (2005) emphasised the advantage of stable personal traits such as extraversion and agreeableness on performance at work. They 'noted that it may be possible to partially predict which people will find the medical workplace particularly stressful' and 'that these people may be more prone to burnout as doctors'.

Ferguson et al. (2002) conducted a systematic literature review of factors associated with success in medical school. He highlighted the important contributions that both learning styles and student characteristics made to successful course completion, with academic performance explaining only 6% of the variance in postgraduate performance. He identified a number of personality tests commonly used in the selection of medical students including the California personality inventory, Rotter's "locus of control" scale, Cattell's 16PF, Eysenck's personality index, the Minnesota Multiphasic Personality Inventory (MMPI), a Myers Briggs type indicator, the state-trait anxiety inventory, and psychiatric interviews. A number of correlations between personality characteristics and academic performance were noted. Dominance correlated with undergraduate multiple

choice question scores (r -0.26), tolerance with numeric ability (r -0.25) and well being with success in oral examinations (r 0.22). Anxiety showed a U shaped relationship with academic performance. Those in the mid range tended to be less anxious than those at extremes. Medical students with high preclinical grades were likely to believe that external factors influenced their progress (r 0.51) more than their own 'internal' behaviours. This belief was more widely held as students progressed through medical school.

Misch (2002) has examined the 'forces that drive medical students to learn'. He emphasises that motivating factors may depend on circumstances and that 'any single explanation of why a given individual behaves as he does is likely to be a gross oversimplification'. He recognises that students are 'internally' and 'externally' motivated to succeed in their careers. Internal motivation may depend on conscious and unconscious factors and can be complex to understand. He gives the example of the 'unrelenting' demands of a perfectionist father ultimately being 'internalised' as personality traits by the student. Secondary gain from achieving a medical degree including 'increased self-esteem, respect and admiration, prestige, wealth, power, even love' can contribute to students' internal motivation to learn. In addition universities, government and professional regulatory bodies require students and doctors to be 'externally' motivated by the need to successfully complete medical school, pass professional examinations, demonstrate participation in continuing medical education and maintain their medical licences. He acknowledges that students are primarily motivated to learn by their assessments. They are taught that it is more important never to 'be wrong or found wanting' than it is to 'take chances and think creatively'.

3.2 Factors influencing career choice during medical school/university

Morrison & Murray (1996) studied the impact of a four week attachment in general practice on career preference among Glasgow university final year students. 131 students returned a questionnaire completed immediately before and after the attachment as well as at the end of their pre-registration house officer year (eighteen months later). The likelihood of students choosing general practice increased immediately after the attachment but declined to the same level as the end of the pre-registration house officer year (Table 2).

Table 2 Likelihood of choosing general practice as a career before, and after, an undergraduate attachment in general practice and after a year as a pre-registration house officer (n=129)

	Number of students (%)					
	Before attachment χ^2=15.6 (2df) P<0.0005		After attachment χ^2=7.56 (2df) P=0.02		After PRHO year χ^2=6.11 (2df) P=0.05	
Likelihood	Male	Female	Male	Female	Male	Female
Likely/very likely	20.3% (12)	54.3% (38)	40.7% (24)	64.3% (45)	23.7% (14)	44.3% (31)
Neutral	54.2% (32)	32.9% (23)	40.7% (24)	27.1% (19)	45.8% (27)	35.7% (25)
Unlikely/very unlikely	25.4% (15)	12.9% (9)	18.6% (11)	8.6% (6)	30.5% (18)	20% (14)

Morrison, J. M. & Murray, T. S. (1996), Career preferences of medical students: influence of a new four-week attachment in general practice, *British Journal of General Practice*, **46**: 722.

Participants were also asked to specify which subjects they most enjoyed before and after their general practice attachment (Figure 9).

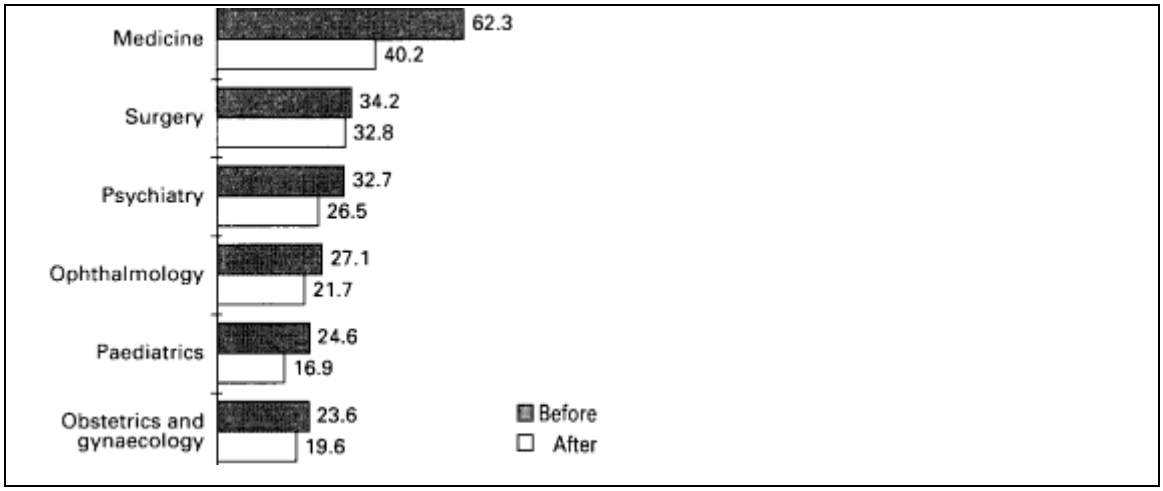


Figure 9 Most enjoyed subjects before, and after, an undergraduate attachment in general practice

Morrison, J. M. & Murray, T. S. (1996), Career preferences of medical students: influence of a new four-week attachment in general practice, *British Journal of General Practice*, **46**: 723.

Students born outside the UK, who had studied medicine after previous degrees or taken intercalated degrees during undergraduate medical studies, were less likely to choose general practice, possibly because of the low status of general practice in other parts of

the world. There was no difference in career choice between those who had ‘won prizes and distinctions and those who had done re-sits’. In general, students expressing preference for a career in general practice identified negative aspects of hospital careers, including work inflexibility and adverse lifestyle issues, as predominant determinants. Nevertheless the improvement in reported numbers enjoying general practice following their final year attachment suggested that undergraduate general practice experience positively influences medical students’ attitudes towards general practice.

At the time of the study general practice tutors were ‘coming to terms with the increased administrative burden imposed by the 1990 contract’. Low morale could have influenced the perception of general practice among students with whom the tutors had regular contact. Interestingly, however, those moving away from general practice cited positive aspects of hospital medicine as the main factors influencing their decision making. Only one student changed career from general practice following the clinical general practice attachment (Figure 10).

Reasons for changing towards general practice	No.	Reasons for changing away from general practice	No.
Dislike/disillusioned with hospital work	13	Enjoyed hospital work	9
Better lifestyle/hours in general practice	10	Dislike management aspect of general practice	4
Continuity of care/ community care	5	Prefer to specialize	3
Dislike hospital career structure	4	Did not enjoy general practice attachment	1
General practice more flexible	4	Hospital suits personality	1
In general practice you are your own manager	4	Hospital work more academic	1
Hospital work is too impersonal	3	Dislike being on-call in general practice	1
Frustrated by hospital management	2	Dislike hospital training for general practice	1
Dislike being on call in hospital	2	General practice too boring	1
Family considerations/ part-time work	2		
Enjoyed general practice attachment	1		
Found general practice challenging	1		
Secure future in general practice	1		

Figure 10 Reasons given for changing career preferences towards and away from general practice

Morrison, J. M. & Murray, T. S. (1996), Career preferences of medical students: influence of a new four-week attachment in general practice, *British Journal of General Practice,* **46**: 723.

Wilson & Cleland (2008) examined the impact of extended remote and rural placement of medical students during their fourth undergraduate year at the University of Aberdeen and showed that the cohort concerned (n=14) did not suffer academically compared to their peers. They also ‘maintained their enthusiasm for long-term remote and rural practice – traditionally unattractive careers for the majority of medical students The results need to be interpreted with caution in light of the small numbers and short study period, but the cohort will be followed up in respect of eventual career choice.

3.3 Factors influencing career choice following graduation

Beardow et al. (1993) studied the factors that determine where young general practice registrars decide to settle. The research attracted considerable attention in the 1990s, especially in respect of city practice. 75 of the 90 general practice trainees in the North West Thames Regional Health Authority responded to a questionnaire seeking information on their career intentions after completion of their training. Only 28% said they would consider working in inner London, despite having trained there. The problems they identified were the preponderance of small practices, poor quality premises, lower incomes and a lack of attached staff. The authors concluded that recruitment to inner London would be improved by increasing the number of training practices, improving relationships between local practices and hospitals and ensuring that more flexible working arrangements were in place to meet the aspirations of female doctors.

Young & Leese's (1999) discussion paper outlining the challenges facing recruitment to general practice toward the end of the 1990s emphasised the crucial difference between approaches adopted by workforce planners, involving national changes to medical school recruitment procedures, and the evidence emerging from the author's review suggesting that better retention and redeployment policies would tackle the manpower difficulties in general practice at that time. It was argued that a 'more sophisticated approach to maintaining an adequate GP workforce is not new to the research literature' but was only 'now being acknowledged by policy makers'. The author advocated more flexible working frameworks for doctors in general practice, in which local level contracts supplanted national arrangements and developments in the workplace reflected changes in the workforce, including the introduction of salaried employment, skill-mix changes and greater opportunity for part time working. These concepts helped to inform manpower strategies within Primary Care Act Pilot Sites and Primary Care Groups as they were established.

Blades et al. (2000) reported specific factors that influence career decisions among pre-registration house officers and general practice registrars in one UK Deanery. He found that 80% of PRHOs and 83% of GPRs had not experienced sufficient career guidance at medical school. 48% of PRHOs and 70% of GPRs regretted choosing medicine as a

career, citing working conditions and stress as the main deterrents at that time. Over 80% of participants identified factors associated with career attractiveness including clinical freedom, teamwork, variety of tasks, continuity of care, flexible working patterns, personal time and family life. Unattractive features included concerns about professional isolation and a general dislike of management roles. The authors highlighted the interest young doctors have in careers in which they 'can apply their skills rather than attempt to become managers' and in which there is 'recognition of their personal needs'.

Lambert et al. (2001) investigated whether age, graduate status at entry to medical school and possession of an intercalated degree were predictors of long-term career choice. Questionnaires were sent to all doctors who qualified in the UK in 1993 and 1996. General practice was chosen by 27% (79/293) of participants who were graduate entrants to medicine and 21.6% (1095/5073) non graduate entrants ($p=0.04$). Among non graduate entrants general practice was chosen as a career by 25.9% (776/2992) of those who did not undertake an intercalated degree as opposed to 15.3% (319/2081) of those who did ($p<0.001$). Specialists who had taken an intercalated degree were more likely to choose medical specialties or pathology. Age did not predict career choice.

The UK Medical Careers Research group regularly surveys cohorts of UK graduates for their career preferences and current placements (Evans et al., 2002). As part of this process doctors are invited to submit written comments about their professional careers as well as detail the factors that have affected their career decision making. During the late 1990s and early 2000s most general practice respondents recorded high levels of job satisfaction, but a significant minority listed adverse comments. The main 'deterrents' to pursuing a career in general practice were poor 'portrayal' of general practice by hospital based teachers and the appearance of low morale among established principals. The combination of changes in commissioning (with doctors being increasingly seen as those who ration care), continual service configuration change, high workload and reduced quality of life resulted in recruitment and retention difficulties. Many doctors sought reduced working hours in order to accommodate child rearing as well as to develop interests outside medicine. Some looked to early retirement, taking career breaks or even leaving the NHS altogether. A number of recently trained doctors found it difficult to find positions suited to their individual

needs. Prior to the implementation of Modernising Medical Careers, Neville (2003) found that hospital based training for general practice registrars was of secondary importance to their service commitment, and teaching was both poor and irrelevant. Along with inadequate exposure to general practice during undergraduate years, this exacerbated the relatively poor image of general practice when compared to other main clinical specialties.

Professional satisfaction is central to attracting and retaining UK general practitioners. In terms of consultations with patients, doctors have been encouraged to adopt patient-centred approaches and move away from didactic, doctor led encounters (Levenstein et al., 1986). Fairhurst & May (2006) conducted a qualitative study of 19 general practitioners, using audio recordings of consultations along with semi-structured interviews and sought to define the domains that doctors found satisfying in consultations. It was considered that 'centrality of relationships' with patients gave meaning, over all other factors, to the work of general practitioners. This contrasts with the situation in many specialties where problem content determines the nature and course of any given interaction between patients and their health professionals (Horowitz et al., 2003). Other key relationships that impacted on general practitioners' satisfaction with their work were:

- Doctors' sense of themselves as doctors was recurrently reported as important to their 'satisfaction with encounters'.
- Personal attributes, as much as clinical competence, were seen as integral components of their make up as successful clinicians. Doctors felt satisfied with consultations in which their sense of themselves was maintained, whereas less satisfaction was recorded when doctors had to adopt less than ideal approaches to patients' problems.
- General practitioners also recognised how they included good practice in their daily work as important. It was sometimes necessary to 'reconcile biomedical best practice with the requirements of interactions suffused with complex contextual considerations'.

Watmough et al. (2007) studied the influence of postgraduate attachments on medical career choice among Liverpool University graduates, who had qualified at least five

years previously. 77% of respondents reported their career choice as ‘most affected’ by postgraduate experience whilst 20% cited undergraduate experience (particularly in psychiatry) as having the greatest impact on their specialty. Five main themes affecting career choice emerged from the free text supplied with the returned questionnaires; clinical experience, lifestyle/work balance, career progression, influence of trainer and other. Although the response rate was low (37%) the authors argued that the respondents contained a ‘representative’ mix of different specialties at equivalent stages in their career development. Experience as a senior house officer was regarded as the most important single experiential factor influencing career choice among this cohort of doctors (Figure 11).

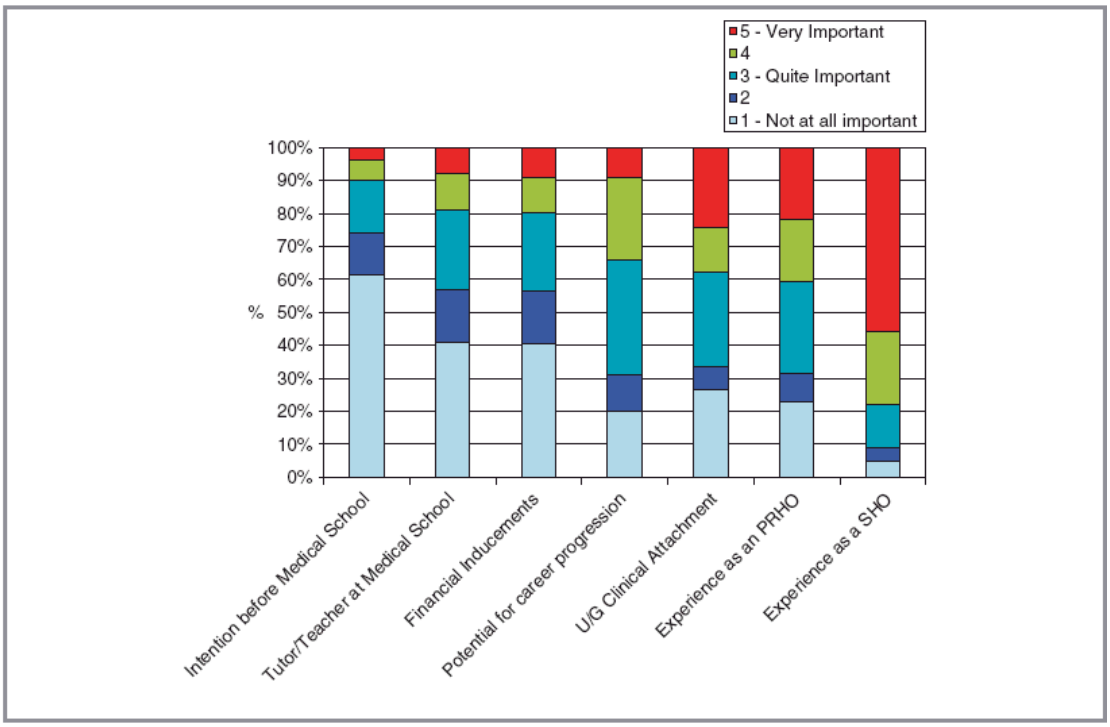


Figure 11 Which factors have most affected career choice?

Watmough, S., Taylor, D. & Ryland, I. (2007), Using questionnaires to determine whether medical graduates' career choice is determined by undergraduate or postgraduate experiences, *Medical Teacher*, **29**: 831.

Goldacre et al. (2010) have reported on doctors’ early choice of specialty at selected intervals after qualification, and their final career destinations. 15759 doctors qualifying in 1974, 1977, 1983, 1993 and 1996 whose career destinations were known 10 years following graduation, were surveyed. Career preferences had been recorded for 64%

(n=10154) at one year, 62% (n=9702) at three years and 61% (n=7429) at five years post graduation. Study participants had been asked to rate their certainty of choice across 13 career options in response to the question “Have you made up your mind of choice of specialty?” The authors found that ten years post qualification half of those surveyed were working in specialties different from their choice one year following qualification. The figure dropped to a quarter when year three choices were compared to career destinations ten years post qualifying. This remained constant across study cohorts despite several changes in postgraduate training programme structures.

Early choice in some specialties, such as general practice and psychiatry, was highly predictive of final career destination. At the same time only half of those who were in general practice a decade following qualification had cited general practice as their first career choice in their first postgraduate year. The strengths of the study lay in its large size, high response rate, inclusion of all UK medical schools and different generations of doctors and its prospective and longitudinal nature. Doctors’ choices of career had been collected contemporaneously and were not subject to recall bias. Complete data were not available for recent cohorts of doctors, including those who embarked on medical careers post 1999 when there was a large expansion in the number of medical students, as well as those who entered postgraduate training post Modernising Medical Careers.

Whilst many doctors successfully followed their career choice made in the first postgraduate year many others changed from their earlier choice. Reasons for this included ‘change of mind, lack of opportunity and lack of success in achieving original aims’ (Taylor et al. 2009). Limited training post in various specialties clearly plays a part determining eventual success in a chosen field. It was argued that too many recently qualified doctors in the UK want careers in hospital medicine and too few in general practice and that there is a need to ‘manage the expectation of medical students and young doctors about career opportunities in different specialties’. Several of the respondents commented on the ‘lack of flexibility’ and ‘having only one lifetime opportunity to succeed in getting on to a training programme’ under recently introduced postgraduate training programmes. The authors suggested that two entry points should be available for most specialties – one after the first or second foundation training year and the second at three years post qualification. The latter was felt to be particularly

useful in providing an entry point for ‘late transfers’ to general practice, psychiatry and public health in particular.

In an accompanying editorial Brown (2010) argues that ‘medical education and Modernising Medical Careers policy in the UK encourages foundation trainees to make career choices when many are not ready to make such commitments’. Thomas (2008) identified three groups of doctors in terms of their career choice in medicine; ‘those who make early commitments to specialties; those who delay, reflect and commit later; and those who change specialty choice’. Brown (2010) suggests that the study by Goldacre et al. (2010) reinforces the belief that two years foundation training followed by a further ‘two or three years of core specialist training may provide the necessary flexibility to match and underpin the natural variation in career aspirations for many postgraduate doctors’.

3.4 Career decision making outside medicine

3.4.1 Early thinking

There is a significant body of evidence surrounding career choice in the general education and occupation literature. Theories have changed over time. Holland (1959) proposed a typology theory of vocational behaviour. He maintained that drive traits and factors were predictable contributors to career choice. These, in turn, were based on a number of assumptions including the beliefs that

- each individual has a reliably measurable unique set of traits,
- occupations require workers to possess certain traits to be a success
- workers with a wide range of characteristics can be successful in many jobs
- choosing, and being matched to, an occupation is a feasible and straightforward process
- the better the match between personal characteristics and job requirements, the more likely the person will succeed – in terms of job satisfaction and productivity

In support of these theories Holland described a set of personality types (realistic, investigative, artistic, social, enterprising and conventional) that helped define occupations best suited to individuals. He argued that individuals belonged to one type more than others and that this predominance was stable over time and with repeated assessment. He hypothesised that particular personality types would seek employment that embodied these characteristics. Anthony (1998) looked at this categorisation in respect of doctors and their careers and suggested that medicine was best matched to those whose personality traits were artistic, social and investigative. The cross cultural acceptability of Holland's theories has been demonstrated among Spanish and French speaking communities as well as when tailored for use in Canada (Harrington, 1986).

Harren (1979) investigated career decision making processes among college students and identified three distinct approaches;

- Rational – systematic approach to decision making that was both logical and reproducible
- Intuitive – reliance mainly on emotions and feelings in decision making
- Dependent – decisions are heavily influenced by peers, friends or families. These decisions depend on the agreement of such individuals

Whilst the rational and intuitive approaches entailed the selecting individual to be fully responsible for their own actions, those adopting the dependent route seemed willing to lay that responsibility on others. Harren maintained that those who took a rational approach to their career decision making were more likely to have successful and fulfilling careers than their dependent counterparts.

3.4.2 Later thinking

Early thinking about career choice took a rational approach to decision making and sought to simplify underlying processes. Career inventories were developed including those that used career planning instruments (Chartrand et al., 1993), multidimensional

measures of career indecisiveness (Harrington, 1986) and models that measured self efficacy (beliefs relating to ability to perform specific tasks) (McAuliffe, 1992).

Of late it has been acknowledged that career decision making is more complicated than earlier models and concepts had suggested. As an early advocate of sequential decision making Gelatt (1989) introduced positive uncertainty as a decision making model that helped individuals manage uncertainties and change as well as take account of the intuitive and non rational elements in their career decisions. Hodkinson (1995) recognised that policies assuming rationality in career decision making might be misleading. He asserted that changes of mind and career direction were, in reality, common events for young people. Hemsley- Brown & Foskett (1999) found that young peoples' career decision making did not follow the economic and strategic models that underpin Government career planning. Models in use failed to explain the decision making actions of individuals and proved problematic for state policy makers. It was proposed that career decision making took place against a landscape of environmental factors and individual choices. Bright et al. (2005) reinforced the importance of contextual influences and explored the role of serendipity in career decision making among Australian students.

In a review of existing literature on career decision making Krieshok (2001) described the complexity of career choice and the ease with which individuals considering careers can be 'set adrift in a sea of career information'. He argued that occupational experience was more important than written information in assisting with career choice. Others have taken this thinking further in attempting to understand unpredictable career decisions and the potential role of chance. Pryor & Bright (2003) argued that logical approaches to career choice take little account of chance events. In order to take account of unexpected decisions a chaos theory framework was proposed. This factored in such events and ensured that inclusion of these elements underlined the dynamic, complex and highly individual nature of career decision making. Nabi et al. (2006) endorsed this view of career decision making as highly individualised and complex and maintained that there is currently no universally accepted general theory to explain career decision making.

Chapter 4: Evidence from other countries with similar degrees of general practice development

4.1 USA

4.1.1 Background

In the USA primary care physicians include family physicians (general practitioners), internal medicine physicians and paediatricians involved in the provision of community based health care. In the UK the term 'primary care' is used to cover all those professionals, including general practitioners, who provide primary health care services for local communities. UK general practitioners can be referred to as family doctors or family physicians; but there is no primary care equivalent to the community based internal physicians or paediatricians seen in the USA.

Primary care physicians constitute less than 40% of total physicians in the USA with family physicians making up 40% of primary care physicians (McDougle et al., 2006). When compared with other industrialized countries, the USA has poorly developed primary care services and poor health outcomes in spite of having the highest overall expenditure on health (Starfield & Shi, 2002). Although the Institute of Medicine has asserted that 'primary care is not a discipline or specialty but a function…of a successful, sustainable health care system,' the American Medical Colleges seem less than supportive of the central position of primary care (McDougle et al., 2006). They maintain that 'the nation is best served by allowing individual graduates to determine for themselves which area of medicine they wish to pursue' (Starfield, 1991). Reticence to engineer significant career shift to primary care has resulted in the continuing trend for graduates to select sub-specialisation. This diminished interest in primary care among US medical students has lead to an increased dependency on international medical graduates (IMG), with 40% of first year residency positions being taken up by IMGs in 2009 (Steinbrook, 2009). Pugno et al. (2009) attribute this continuing decline in the popularity of primary care as a career to multiple factors including 'student perspectives of the demands, rewards and prestige of the specialty, the turbulence and

uncertainty of the health care and economic environments, lifestyle issues, the advice of deans and the impact of faculty role models'.

Walker (2006) attributes the steady decline in interest in primary care in the United States since 1997 to the combination of economic recession and reimbursement differences between specialties. Between 1998 and 2000 inflation-adjusted income for medical sub-specialists and radiologists increased by 9% whilst generalist income fell by 2.1%. Clinical activities that involve technical procedures attract more remuneration those that do not. Although 53% of doctors (7218 out of 13567 graduates) in 1997 planned to enter primary care, this decreased to 21.3% (1777 out of 8337 graduates) in 2005. In his review Professor Walker states that;

> Medical school students and residents see the primary care physician as a harried, deeply troubled and unhappy individual who spends inordinate hours delivering care, but who finds the time he or she is able to give patients inadequate, the quality of care delivered intolerable, the income derived too little and the regulatory hassle unacceptable.

In reviewing career satisfaction he refers to differences between primary care and specialty residents;

> Feelings of excitement and competence were significantly greater in the specialty residents, while negative emotions such as feeling overwhelmed, too many patients in too little time, feeling inferior, fatigue, lacking self-confidence and having anxiety about competence were greater in the primary care residents.

4.1.2 Meta-analysis and literature reviews

Bland et al. (1995) conducted a meta-analysis of literature around career preference for primary care between 1987 and 1993. 73 high quality articles were included in the review. The authors found that preference for primary care tended to diminish as students progressed through medical school. Student factors associated with primary care career choice included having non-physician parents, being female, married and older at entry to medical school, having a broad education, being interested in patients and their health problems in community settings, and having lower income expectations. Institutional culture underpinning primary care was associated with a greater output of primary care physicians. However, very few medical schools produced a majority of

graduates who worked in primary care. Even those with specially designed teaching programmes for family medicine rarely achieved more than 60% of their graduates entering careers as primary care clinicians. Within the average national figures there were considerable variations (Kahn et al., 1994). Students from publicly funded medical students were twice as likely to enrol on family practice residencies as those studying at privately funded schools (15.9% versus 7.1%). Those who trained in the Mountain region were three times as likely to be first year residents in primary care as those trained in the New England region (19.1% versus 6.6%). Half of those selecting primary care did so in the State in which they qualified. While students choosing primary care did relate to time spent in family practice clerkships as well as 'longitudinal primary care experiences', no significant effect on recruitment was seen from early exposure to family practice teaching within medical schools or attachment to family doctors in their own clinics.

Later reviews of general practice as a preferred career choice by Meurer (1995), Campos-Outcalt & Senf (1999) and Senf et al. (2003) were largely observational. They revealed a number of key factors consistently associated with a career preference for family medicine. Among those cited are student characteristics such as age, ethnicity, rural background, lower income expectation, early declaration of preference for family practice, and participation in a programme designed to produce family doctors. Later work by Campos-Outcalt et al. (2007) identified additional factors thought to impact on career choice, albeit less consistently, including gender, marital status, debt, faculty influence, family medicine curriculum and admission committee composition.

Jeffe et al. (2010) have reviewed primary care specialty choices of United States medical graduates between 1997 and 2006. They evaluated two questionnaires (the Association of American Medical Colleges' Matriculating Student questionnaire and the Graduating questionnaire, of 102,673 graduates. This study sample constituted 64.9% of all medical graduates during this period. The questionnaires examined 'demographic, attitudinal, and career intention….in association with the specialty outcomes of interest'. Although these were general medical career questionnaires the focus of the review, for analysis purposes, was on primary care specialty choices. These were defined as general internal medicine (including internal medicine/paediatrics), internal medicine sub-specialities, general paediatrics, paediatric subspecialties and family medicine. The

authors found a substantial shift away from primary care specialty choice between 1997 and 2006 among the study population. The proportion of all graduates who chose any of the six primary care specialties decreased from 60.7% in 1997 to 42.1% in 2006. The percentage of graduates completing the Graduating questionnaire who had chosen family medicine declined from 17.6% to 6.9% over the decade of the study. During this period the proportion of female graduates increased from 42.5% to 50.8% and the proportion of Asian/Pacific Islander students from 14.4% to 17.6%. Multivariate logistic regression revealed some predictors of primary care choice. Women graduates, those holding more altruistic health care beliefs, those who emphasised social responsibility and those intending to practice in deprived communities were more likely to select general internal medicine, family medicine, general paediatrics or obstetrics-gynaecology. Graduates who regarded intellectual challenge as important, were interested in research and academic medicine or had parents who were doctors were less likely to select a primary care specialty.

The ‘drivers of student interest’ have been studied intensively in the United States of America in an effort to reverse the pattern of recent years (Campos-Outcalt et al., 2004). Besides lack of prestige within academic health centres, medical students frequently report experiencing ‘disparaging remarks’ from faculty and residents whenever they expressed an interest in family medicine. Pugno et al. (2007) reported that some students regarded family medicine as ‘too easy’ whilst others saw the task of practising comprehensive and evidence based medicine as too taxing in such a broad domain. Moreover, a widening ‘income gap’ between specialists and generalists has been generating an imbalanced workforce (Bodenheimer et al., 2007). Burack et al. (1997) studied 47 medical students in their final year at Washington University and recorded their participation in focus groups looking at specialty choice. Transcripts were thematically coded and analysed using grounded theory. Those who identified primary care as their preferred career pathway reported interaction and relationship with patients, role models and mentors, original choice and medical school culture as key factors influencing their decision. Those preferring non primary care specialties listed controllable hours, lifestyle, intellectual challenge, pace, excitement and opportunities to carry out procedures as their principal drivers. Role models were much more influential for those choosing primary care and tended to offset negative images generated elsewhere. All students described ‘personal fit’ with their chosen specialty as

being particularly important. The authors felt students were ‘trying on possible selves’ by imagining themselves in future hypothetical medical occupations. This was felt to explain the impact of role models on their early preferences.

4.1.3 Factors influencing career choice

Not all studies have produced identical results in terms of determinants of generalist intentions. Kassebaum et al. (1996) reviewed predictive influences of specific career choice variables among US medical graduates. Whilst female gender, rural background, early interest in family medicine, positive clinical attachments in the third and fourth year and the presence of a family medicine department were correlated with a higher likelihood of pursuing a generalist career, institutional commitment to ‘cultivating’ generalist medicine and giving preference at admission to those who professed an interest in generalism did not. The authors felt this supported the theory that ‘generalist career intentions are largely carried on the tide of students’ interests and experiences in family medicine and ambulatory care’. Research by Senf et al. (1997), based on the characteristics of medical schools (funding, faculty curricula, primary care department constitution and primary care representation of key committees including selection, promotion and tenure committees), showed that the most effective method of enhancing recruitment to family medicine was to admit more students professing an interest in the specialty on completion of their schooling. Henderson et al. (1996) explored the influence of role models on career intent among medical students undertaking 3rd year clerkships. Those exposed to general internists were more likely to pursue primary care at qualification; but those already set on family medicine were more likely to choose general internal medicine after exposure to a general internist.

Gorenflo et al. (1994) developed a multivariate model for establishing specialty preference among medical students. Analysis of data showed that 12 medical schools increased the number of family practitioners whilst the other half decreased its number. Factors associated with significant increased interest in family medicine as a career included;

- explicit preference for family medicine at entry to medical school
- family medicine clerkships at two or more sites

- high regard for the family medicine faculty
- identifying a faculty member as a family medicine role model
- clinical rotations in both family medicine and primary care

As a result, it was recommended that medical schools wishing to increase their output of family physicians 'should select students inclined towards family medicine and rural practice, should adopt a curriculum that maximises clinical training with family physicians and other primary care physicians, and should ensure that their family medicine faculty members are perceived as competent role models'. Programmes including these elements have proven successful (Rabinowitz, 1999a).

Pretorius et al. (2008) used a sixteen year, retrospective, case-controlled study of medical school graduates from the University of Buffalo to test the hypothesis that the 'social milieu in which students are raised prior to college' independently impacts on their eventual career choice Those entering family residency programmes were compared with a control group of specialist trainees (n=362); and the results showed that students from rural backgrounds were twice as likely to go into family medicine as specialty practice (OR 2.27, $p<0.01$). Those from urban areas were just as likely to enter family medicine as another specialty, but students from New York city were less likely to become family practitioners (OR 0.64, $p=0.08$). While many factors determine career paths in medicine, this study underlines the importance of early cultural exposure as a significant predictor of professional trajectories.

4.1.4 Rejecting general practice

Schafer et al. (2000) investigated why many medical students rejected family practice and switched to another specialty. His two part questionnaire to 397 medical students at the University of California was administered after the National Resident Matching Programme Match and before graduation in 1996, 1997 and 1998. The first part asked participants for their top three residency choices 'prior to beginning clinical clerkships' and the second part the specialty they 'ultimately selected in the match'. They were further asked to rate factors that may have positively or negatively influenced their choice of specialty. They were also provided with the opportunity to make free test responses. 81% completed the survey. 131 matched to a primary care specialty: family

practice (25), internal medicine (66), paediatrics (6) or combined internal medicine and paediatrics (6). However, at the end of their clinical years, only 37% of the students who initially chose family medicine eventually took up the specialty.

This agrees with other reports that found family practice retaining only 34% of students choosing the specialty at the outset, and only attracting 8% of those not initially interested (Markert, 1991; Bowman et al., 1996). Students who rejected family practice listed 'lack of prestige, insufficient intellectual content and excessive breadth of content' as justification for their decision. There was a tendency for students, faculty and residents to 'denigrate' family practice. Some students who were never interested in family practice reported active, and often unwanted, promotion of general practice by various members of Faculty.

Markert (1991) investigated reasons why students changed to and from primary care as their career choice. 217 of 832 students graduating at the Wright University School of Medicine between 1981 and 1990 changed their career choice during their medical school training. 164 of these students switched to non-primary care paths and 53 to primary care. Those who switched to non primary care specialties listed positive clinical experiences and greater awareness of other specialties as their main reasons for changing. Financial factors were seen as more important to this group than those electing primary care careers. Location of residency and content of the curriculum were more dominant influences among those switching to primary care.

The American Academy of Family Physicians (AAFP) has implemented several major projects since 1988, designed to increase student interest in family medicine. These have included educational initiatives, establishing departments of family medicine in nearly all US medical schools and increasing the opportunities for family medicine attachments and international electives (Block et al., 1996; Bazemore et al., 2007). In reviewing the results of the 2007 National Resident Matching Program (NRMP) Pugno et al. (2007) noted that US student interest in family practice 'remains of concern' and that 'student perception of the demands, rewards, and prestige of the specialty; market changes; lifestyle priorities; and the role of faculty role models appear to be drawing students away from family medicine as a career choice'. Schafer et al. (2000) reported some negative views of the specialty. Faculty 'disparagement', poor academic status

and the inability to ‘master the content needed to practise comprehensive, evidence based medicine’ were common reasons given by students to explain negative perceptions of family medicine. The ‘dissatisfaction’ of established family physicians with an over managed and over regulated system also clearly impacted on the attractiveness of family medicine as a career option In formulating a strategy to strengthen family medicine in the US the AAFP has identified specific actions for improving ‘recruitment, training and retention’. These include promoting family medicine as a way of having a ‘positive impact on patients’ lives’, supporting family medicine training programmes appropriately, and addressing shortcomings in practice.

4.1.5 ‘Badmouthing’ and general practice

Negative comments about family medicine by residents and faculty members are believed to have contributed to the declining interest in the specialty over the last decade. Campos-Outcalt et al. (2003) conducted a national survey of 1428 graduates, who entered family practice over a two year period commencing 1997, in order to establish any connection between negative comments and career choice. A questionnaire was developed that included the gathering of specific negative comments, recording the frequency with which they occurred and collecting participants views on the respectability, clinical competence and enthusiasm of family medicine faculty.

In general, those in family practice heard negative comments about family medicine more often than those in other primary care specialties (Table 3).

Table 3 Negative comments heard by medical students about family practice

	Family Practice # (%)	*OPC Specialties* # (%)	P *Value*
From faculty			<.001
Often	197 (25.5)	56 (10.1)	
Sometimes	428 (55.4)	303 (54.4)	
Never	148 (19.1)	198 (35.5)	
From residents			<.001
Often	243 (31.6)	107 (19.3)	
Sometimes	443 (57.6)	369 (66.6)	
Never	83 (10.8)	78 (14.1)	
From students			.005
Often	171 (22.2)	103 (18.6)	
Sometimes	467 (60.6)	382 (69.1)	
Never	132 (17.1)	68 (12.3)	

OPC—other primary care

Campos-Outcalt, D., Senf, J. & Kutob, R. (2003), Comments heard by US medical students about family practice, *Family Medicine*, **35**: 576.

This may relate to residents and faculty members trying to 'talk them out' of their career choice. The main negative comments were that family physicians were 'not as smart' as their specialist contemporaries and that they could not 'master' the content of the specialty. There was also a view that family physicians could be replaced by 'less well-trained, mid-level professionals' (Table 4).

Table 4 Comments about family physicians heard 'often' by students

	Family Practice # (%)	*OPC Specialties* # (%)	*P Value*
Are HMO doctors	34 (4.4)	19 (3.4)	NS
Are not as smart	191 (24.8)	65 (11.6)	<.001
Replaced by midlevels	135 (17.4)	43 (7.7)	<.001
Can't master content	349 (45.1)	241 (43.0)	.025
Needed in rural areas	582 (75.4)	373 (66.7)	.002
Have better patient relations	419 (54.3)	176 (31.6)	<.001

HMO—health care organization
OPC—other primary care
NS—not significant

Campos-Outcalt, D., Senf, J. & Kutob, R. (2003), Comments heard by US medical students about family practice, *Family Medicine*, **35**: 576.

While the study did report higher levels of 'badmouthing' for family medicine it was not possible to firmly link this with declining student interest. However the persistent negative views held by some faculty members, and other specialist faculties, towards family practice were deemed 'troubling', especially after 30 years as a recognised specialty. Hafferty (1998) suggested that this 'hidden curriculum' might prove difficult to change**.**

4.1.6 Personality and general practice

Markert et al. (2008) examined the link between personality and specialty choice among four classes of medical school graduates from the Tulane University School of Medicine. A 240 item behavioural inventory (the Neuroticism-Extraversion-Openness Personality Inventory Revised (NEO PI-R) was administered to students enrolled between 2003 and 2006. NEO PI-R measures five domains (see Table 5); and the Specialty Choice of graduates was extracted from the National Residency Matching Programme.

Table 5 Comparison on NEO PI-R for 11 specialty choices: Tulane school of medicine classes (2003-2006)

Domain	F (ANOVA)	*P* Value
Neuroticism	2.515	.006*
Extraversion	1.409	.173
Openness	3.552	< .001†
Agreeableness	2.695	.003‡
Conscientiousness	1.602	.103

NEO PI-R = Neuroticism-Extraversion-Openness Personality Inventory Revised; ANOVA = analysis of variance

*Internal medicine > anesthesiology; pediatrics > anesthesiology and surgery; radiology > anesthesiology and surgery

†Psychiatry > anesthesiology, dermatology, emergency medicine, family medicine, pediatrics, radiology, and surgery; obstetrics-gynecology > anesthesiology, dermatology, radiology, and surgery

‡Radiology < anesthesiology, dermatology, family medicine, internal medicine, internal medicine/pediatrics, and obstetrics-gynecology; family medicine > surgery

Markert, R. J., Rodenhauser, P., El-Baghdadi, M. M., Juskaite, K., Hillel, A. T. & Maron, B. A. (2008), Personality as a prognostic factor for specialty choice: a prospective study of 4 medical school classes, http://www.ncbi.nlm.nih.gov/pmc/articles/PMC2270893/?tool=pubmed Accessed 15 November 2008.

There were no specialty differences noted for extraversion and conscientiousness. However variations between specialties were found when characteristics such as neuroticism, openness, and agreeableness were considered. For instance, comparison with graduates entering family medicine showed that scores for openness were higher among those contemplating careers in psychiatry. Those going into surgery had lower conscientiousness scores than graduates entering family medicine.

Changes in career choice from matriculation to residency were also studied. Eleven specialties with more than ten graduates each were reported (Table 6).

Table 6 Comparison on NEO PI-R for graduates who changed and did not change specialty choice between matriculation and graduation: Tulane school of medicine classes (2003–2006)*

Domain	t	*P* Value
Neuroticism	0.649	.52
Extraversion	0.921	.36
Openness	1.813	.071†
Agreeableness	0.762	.45
Conscientiousness	−0.364	.72

NEO PI-R = Neuroticism-Extraversion-Openness Personality Inventory Revised

*n = 352: changed specialty choice between matriculation and graduation; n = 155: did not change specialty choice between matriculation and graduation

†Graduates who changed specialty choice had a higher mean score on openness (ie, more open to change)

Markert, R. J., Rodenhauser, P., El-Baghdadi, M. M., Juskaite, K., Hillel, A. T. & Maron, B. A. (2008), Personality as a prognostic factor for specialty choice: a prospective study of 4 medical school classes, http://www.ncbi.nlm.nih.gov/pmc/articles/PMC2270893/?tool=pubmed Accessed 15 November 2008.

Personality characteristics relating consistently to primary care included openness, agreeableness and conscientiousness, although these were also found in other career specialties. No specific specialty differences, however, were noted for extraversion and conscientiousness. The authors pointed out that 'ethical considerations' made the use of instruments such as NEO PI-R at selection for medical school unlikely, but felt that information relating to individual characteristics might assist students in identifying specialties that best suited their personalities.

4.1.7 Financial influences

Physicians' incomes vary considerably with the specialty, geographical location, type of practice and practice structures. The impact of financial factors on career choice is a subject of ongoing interest to health care planners. A number of studies have looked at a putative link between student indebtedness and choice of residency (French, 1981; Geertsma & Romano, 1986). Colquitt et al. (1996) employed logistic regression models to identify significant predictors of primary care specialty choice and the direct and indirect effects of debt have revealed complex relationships. Although debt appeared

important in those opting for family medicine it was also a significant consideration for those choosing internal medicine and those wishing to practise in specific geographic areas.

Although some of these early papers suggested diminished interest in primary care associated with higher levels of debt, Kassebaum & Szenas (1993) found no such association. In order to clarify the situation Kahn et al. (2006) undertook a five year analysis of student debt and choice of residency among 2022 graduates of three US medical schools. Data were gathered on total debt, medical school, residency programme length and year of graduation**.** Graduates entering primary care were found not to have significantly less debt than those choosing non-primary care residencies ($87,206 versus $91,430; p= 0.09). Total debt did not predict enrolment on primary care residency, even when adjusted for the other three variables. It was postulated that 'lack of knowledge about debt repayments, unfamiliarity with earning potential and an inadequate appreciation of financial strategies' contributed towards students making career decisions without considering their indebtedness.

Ebell (2008) looked at the fill rate of a range of specialties, total positions available and starting incomes in 2007 (see Table 7). There was a direct relationship between overall salary and specialty fill rates among US graduates (r=0.82; P=.001). Primary care had both low incomes and low fill rates (mean salary ($185 740), fill rate (42.1%) (Figure 12).

Table 7 Salary and residency match data

Specialty	PGY-1 Positions Offered, No.[3]	Starting Salary, Mean, $[4]	Overall Salary, Mean, $[4]	Filled Positions, No. (%)[3]					Total Filled Positions, %[3]
				US Allopathic Graduates	US IMG	Non-US IMG	Osteo-pathic	Unfilled	
Family medicine	2603	130 000	185 740	1096 (42.1)	335 (12.9)	538 (20.7)	227 (8.7)	304 (11.7)	88.3
Pediatrics	2328	125 000	185 913	1695 (72.8)	113 (4.9)	282 (12.1)	129 (5.5)	63 (2.7)	97.3
Internal medicine (all)	4798	135 000	193 162	2680 (55.9)	392 (8.2)	1303 (27.2)	233 (4.9)	78 (1.6)	98.4
Psychiatry	1057	160 000	200 871	633 (59.9)	71 (6.7)	176 (16.7)	30 (2.8)	57 (5.4)	94.6
Neurology	160	177 500	222 998	83 (51.9)	4 (2.5)	56 (35.0)	9 (5.6)	4 (2.5)	97.5
Pathology	513	NA	247 506	296 (57.7)	22 (4.3)	75 (14.6)	29 (5.7)	47 (9.2)	90.8
Emergency medicine	1288	178 000	255 530	1027 (79.7)	58 (4.5)	23 (1.8)	120 (9.3)	6 (0.5)	99.5
Obstetrics/gynecology	1155	NA	297 887	837 (72.5)	78 (6.8)	120 (10.4)	87 (7.5)	6 (0.5)	99.5
Otolaryngology	270	220 000	327 399	251 (93.0)	1 (0.4)	8 (3.0)	0	2 (0.7)	99.3
General surgery	1057	220 000	327 902	826 (78.1)	56 (5.3)	74 (7.0)	74 (7.0)	2 (0.2)	99.8
Anesthesiology	575	275 000	344 691	448 (77.9)	24 (4.2)	32 (5.6)	48 (8.3)	14 (2.4)	97.6
Radiology	141	350 000	414 875	125 (88.7)	3 (2.1)	4 (2.8)	6 (4.3)	0	100
Orthopedic surgery	616	NA	436 481	578 (93.8)	4 (0.6)	10 (1.6)	2 (0.3)	2 (0.3)	99.7

Abbreviations: IMG, international medical graduate; NA, not available; PGY-1, postgraduate year 1.
[a] Does not include nonsenior US graduates, Canadian graduates, and graduates using the Fifth Pathway.

Ebell, M. H. (2008), Future salary and US residency fill rate revisited, *Journal of the American Medical Association,* **300**: 1131.

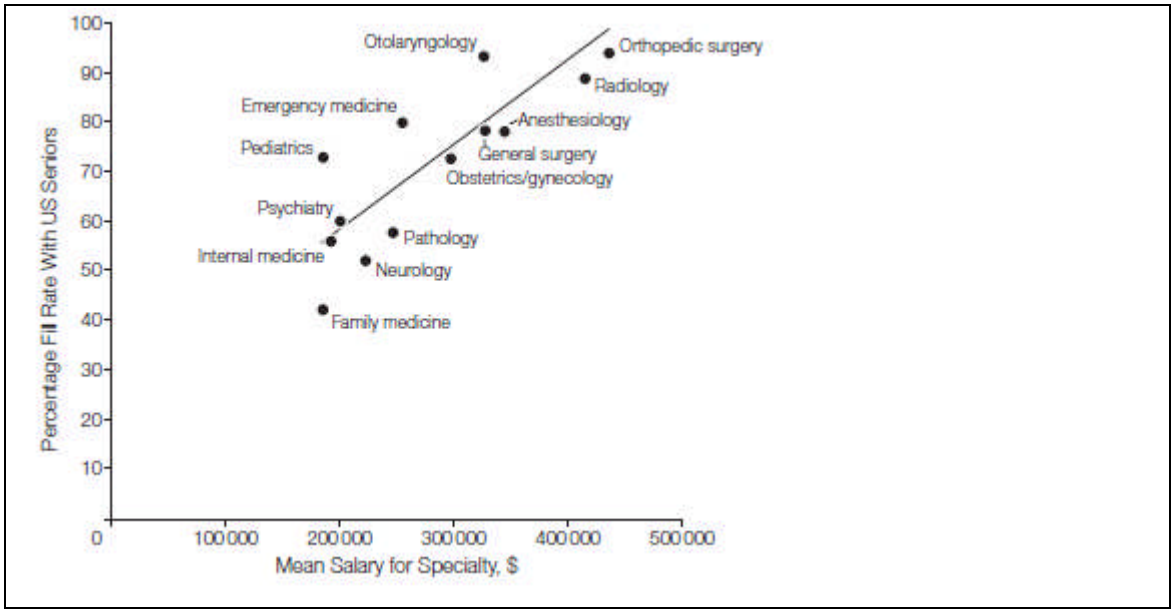


Figure 12 Percentage of positions filled with US seniors versus mean overall income by specialty

Ebell, M. H. (2008), Future salary and US residency fill rate revisited, *Journal of the American Medical Association,* **300**: 1132.

He argued that 'addressing disparities in salary by specialty' was central to reversing the decline in popularity of family medicine as a career choice among US medical

graduates. Macinko et al. (2007) recognised that where higher percentages of doctors are working in primary care there are ‘better population health outcomes, including reduced all-cause, cardiovascular, infant, and cancer-specific mortality’.

Hueston (2009), however, interpreted the data differently pointing out that fill rate, dependent as it is on the needs of the local health economy and factors other than those relating to student preference, is a less reliable index of specialty popularity than student career intent. The reality is that family medicine is among the top three career choices for senior medical students in the US along with internal medicine and paediatrics. If the data is reanalysed looking at how many doctors enter family medicine against salary very little correlation appears (Figure 13).

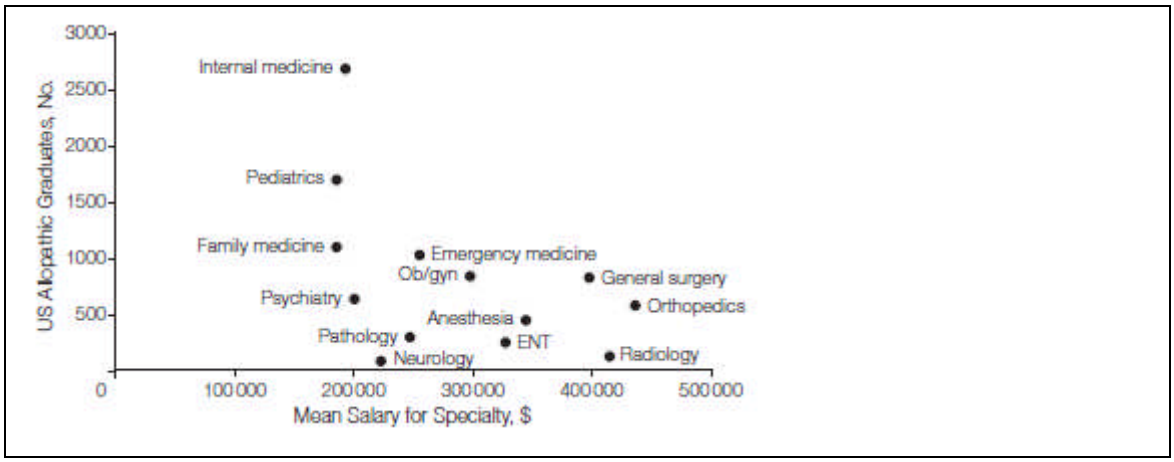


Figure 13 Number of residency positions filled with US seniors versus mean overall income by specialty

Hueston, W. (2009), Future salary and medical student specialty choice, *Journal of the American Medical Association*, **301**: 826.

4.1.8 Litigation and general practice

Pyskoty et al. (1990) investigated the impact of malpractice litigation on career choice in the mid 1980s among 187 students in all four years at a medical college in Chicago (Table 8).

Table 8 Factors in choosing a high or low-risk specialty

Factor	Percent Indicating Factor Is Important: Overall (n=102), %	High Risk (n=40), %	Low Risk (n=62), %	P*
Aptitude for material in specialty	70.6	67.5	72.6	
Opportunity to see a wide variety of diseases	68.6	47.5	82.3	<.001
Organ system or type of disease seen	66.3	72.5	62.3	
Opportunity to know patients well	65.3	47.5	77.0	<.01
Patients appreciate physician's efforts	64.4	75.0	57.4	
Ability or technical competence	59.4	87.2	41.9	<.001
Effectiveness of treatments	59.0	87.2	41.0	<.001
Opportunity to perform operations or procedures	55.9	95.0	30.6	<.001
Scientific knowledge or precision	54.9	70.0	45.2	<.05
Presence of many difficult diagnostic problems	51.0	30.0	64.5	<.01
Opportunity to add new knowledge to specialty	49.0	57.5	43.5	<.05
Faculty or house staff as role models	48.5	38.5	54.8	
Site of residency training	42.6	41.0	43.5	
Opportunity to live in urban, rural, or suburban area	42.6	41.0	43.5	
Greater flexibility in time management	41.2	30.0	48.4	<.01
Prediction of manpower needs	31.4	22.5	37.1	<.01
Quality of medical school teaching	26.5	30.0	24.2	
Length of postgraduate training	26.5	12.5	35.5	<.01
High prestige within the profession	24.8	25.0	24.6	
Financial rewards of practice	23.5	35.0	16.1	<.05
Experience of self or family member as patient	19.0	15.0	21.7	
Low rate of malpractice lawsuits	14.7	7.5	19.4	<.001
Low malpractice insurance premiums	12.9	7.7	16.1	<.001
Influence of family or close friends	10.9	7.5	13.1	<.05
Interactions with students in medical school	9.1	....	14.8	<.001
Debts from college or medical school, or both	3.9	....	6.5	

*χ^2 values based on comparisons between high-risk and low-risk groups.

Pyskoty, C. E., Byrne, T. E., Charles, S. C. & Franke, K. J. (1990), Malpractice litigation as a factor in choosing a medical specialty, *Western Journal of Medicine*, **152**: 310.

The expectation was that high risk specialties (anaesthetics, emergency medicine, obstetrics and gynaecology, and surgery and its sub-specialties) would have had difficulty recruiting graduates in the face of rising litigation. However, analysis of the returns proved this not to be the case, because other factors were dominating decision processes. Concerns about litigation appeared to have little impact. The exception to this finding was the group of doctors who switched from high risk to low risk occupations. They recorded malpractice concerns as significant factors in deciding to change to a lower risk career. Babbott et al. (1989) noted that many physicians interviewed about their malpractice experience stated that it was the most stressful period of their whole lives. Nevertheless these experiences have to be set in context of the career trend at the time of the study favouring specialism over primary care. The positive aspects of specialism were decisive.

4.2 Canada

In an oration to the College of Family Physicians of Canada Dr Victor Johnson stated that general practitioners 'are the doctors closest to people. They heal more of the broken-hearted, repair more of the injured and deprived and live with the poor and dying who are without influence and hope' (Rourke, 2008).

4.2.1 Declining interest in general practice

Recruitment of medical students into Canadian general practice training has been on the decline over the last decade (MacKean & Gutkin, 2003; Sullivan, 2003). Students tend to encounter more specialist role models during their undergraduate teaching programmes and often have less successful experiences within primary care (Wright et al., 2004). Mann (1994) and McKee et al. (2007) noted that early interest in general practice may actually 'decline' during training. Scott et al. (2008) investigated factors that influence Canadian medical students' career choice and showed that students interested in a surgical career, compared to those opting for family medicine or a medical specialty, were more likely to be male, single and 'influenced by prestige'. Their choices were less influenced by breadth of practice and medical lifestyle. They were less likely to demonstrate a social orientation than their non surgical colleagues and more interested in working in a hospital setting.

In response to diminishing interest in family medicine Canadian medical schools have encouraged the development of 'interest groups' in order to 'inform students about the range of opportunities and rewards offered by careers in family medicine as well as offer them positive role models' (McKee et al., 2007). The University of Saskatchewan formed a Family Medicine Club in 2001. Hourly midday lunchtime meetings took place three times a term and were organised by student leaders. The effectiveness of the programme was assessed by surveying graduates of 2006 – all of whom had been through the programme during their basic training. Although response rates were low (30%), all those who replied thought that their understanding of family medicine had been enhanced through attendance at the club meetings. Just over a quarter stated that the meetings had influenced their choice of family medicine as a career. Positive comments in the free text included;

> Information provided by residents regarding the programme was very valuable.
>
> It was also important to me to be in an environment supportive to family med. as a career choice.
>
> The information provided assuaged some of my doubts regarding family medicine.

Comments made by those who thought the clubs had no impact on their decision included;

> At the events, what I learned about family med was the stuff I already knew, thus it did not add anything to my career choice decision-making process.
>
> My decision on specialty area was based on personal observations and discussions with friends: i.e. their practices and my interest in or aptitude for the subject.

Although this evaluation was limited by a low questionnaire response rate, the authors argued that 'The club's influence appears to go beyond simply increasing students' knowledge about the discipline'. These family medicine interest groups exist in several medical schools in the Canada and the USA and have a common website where ideas and experiences can be shared. Key factors that make the club more likely to be successful include:

- Working with student leaders to ensure interesting topics are chosen and times that do not clash with other events
- Ensuring continuity of Faculty support
- Making refreshments and food available
- Providing opportunities for informal exchange in a supportive atmosphere
- Seeking the support of family medicine residents and local physicians to act as 'positive role models'

The authors acknowledged, however, that their analysis reflected the views of students who were already had some interest in family medicine, but did not 'capture the experiences of students' who chose other specialities.

Senior doctors have argued for family medicine to be recognised as a specialty (Bailey, 2007). Some regard lack of such recognition as a significant negative factor among students contemplating a career in general practice, while others point to the key role of the generalist, fearing that assuming the 'specialist mantle' will serve only to confuse patients, professionals and students.

Lu et al. (2008) looked at factors that affect career choices among family medicine graduates at the University of Calgary. Of the 17 second year residents who participated, 15 intended to practise in city, rather than urban, environments. Those opting for urban working cited family responsibilities and lifestyle issues as being paramount in decision making. Some from rural backgrounds had partners whose employment was city based and, consequently, determined their own work locus. Others were concerned about the demands of rural family practice, including on call arrangements, as well as the lack of specialist backup. Most felt ready for practice. International medical graduates were more confident of their clinical skills than their Canadian counterparts, mainly because they had previously worked as independent practitioners. During their training many graduates had experienced condescending attitudes from specialists towards family physicians; and this was thought to 'undermine' graduates' confidence in their career choice and clinical ability. In particular, some feared their decisions being criticized by specialists. Many elected not to provide obstetrics services in rural settings because of inadequate training during residency. While most felt that lengthening the residency programme to three years (i.e. adding an additional year to the two currently provided) would be desirable on grounds of experience, there were concerns about the financial implications of any delay in commencing independent practice. The authors were concerned at the continuing 'negativity' towards family practice exhibited by a range of specialists. They acknowledged that some residents' medical skills may, in fact, be 'suboptimal' and that an extension to training may be necessary in order to improve the clinical and academic image of family medicine among other specialties.

4.2.2 Factors influencing career choice

Scott et al. (2007a) investigated career preferences at three medical schools in western Canada. The research focussed mainly on attitudes towards general practice as students passed from enrolment to residency. Participants recorded their career choices at entry

to medical school, at completion of pre-clinical training and immediately after choosing their residency at the end of clinical training. Sampling was purposeful. Nearly all students had remained with their earlier choice of general practice or switched to it from another speciality. Data was gathered by a series of interviews and focus groups, and analysed after thematic categories and open coding of transcripts had been agreed. Results were checked for trustworthiness, both internally (use of focus groups and comparison across three universities) and externally (corroboration of coding scheme by non – study medical students). Three interview 'probes' were used;

- What influenced you to choose the area you were interested in pursuing at the beginning of medical school?
- What experiences over the course of your undergraduate medical education influenced you to switch to, or maintain your commitment to, family medicine as a career choice?
- What do you think medical schools can do to help students make decisions about their careers in medicine?

27 of the 33 participants were female. Four career stages were identified by participants; pre-clinical, medical school, postgraduate training and 'life-in-medicine'. Negative and positive role models were both regarded as important factors in career decision making as a preclinical undergraduate. Students' lack of exposure to primary care, and the general 'derogatory' portrayal of family medicine by preclinical teachers, was commonly reported in pre-clinical training. But, during clinical training a more mixed picture emerged. Whilst there was still limited exposure to primary care, students reported positive experiences with good family medicine preceptors. Some became aware of the variation and breadth of family medicine and found general practice appealing; but were still confronted by negative representations of general practice by specialists involved in teaching. In the postgraduate phase there was a trend for family medicine to be regarded as a 'back up' should students fail to get the specialty of their choice. Opting for family medicine was regarded as 'limiting oneself' and that high achieving students should go for 'more' than family medicine. Hunt et al. (1996) and Campos-Outcalt et al. (2003) found that 'bad-mouthing' of family medicine featured strongly in medical school teaching faculties Students choosing family practice clearly regarded achieving a balance between clinical practice and personal family aspirations

as important. The ‘scope’ of clinical practice and the ability to form long term relationships with patients figured prominently in student responses and to some extent compensated for poor remuneration and lower status than other specialties.

Manca et al. (2007) carried out a web based qualitative survey of 28 Canadian family physicians using a Delphi method and reported eight rewards in order of importance:

1. Providing diverse and comprehensive care
2. Providing preventative care
3. Relating closely to patients and their families
4. Being an immersed witness to the human condition
5. Providing continuity of care and receiving ongoing feedback
6. Having flexibility and control of practice and job security
7. Maintaining and acquiring skills and knowledge
8. Teaching and sharing knowledge and gaining experience and mentoring,

and nine challenges in order of need:

1. Workload, time pressures and meeting demands
2. Promoting the rewards of family practice to those considering joining the profession
3. Financial inequities
4. Gaining respect from specialists
5. Ensuring that rewards are not adversely affected by primary care reform
6. Lack of availability of specialists, procedures, tests and other resources
7. Running practices as small businesses, paperwork, telephone calls and forms
8. Maintaining and acquiring skills and knowledge
9. Patient expectations, medico-legal issues, insurance paperwork and dealing with medical claims relating to motor vehicle accidents

A novel finding was that of the doctor as an ‘immersed witness to the human condition’ suggesting that, in addition to the longitudinal and ‘intense’ relationship with patients, a ‘sacred or spiritual’ component exists.

Noble & Baerlocher (2006) investigated the anticipated geographic practice profiles of medical trainees qualifying in Canada by distributing questionnaires to all medical students, residents and physicians whose details were collected in the 2004 National Physician Survey. 64% of all trainees planned to work in, or close to, their place of training with 12% planning to work abroad. Those enrolled on family medicine training programmes were more likely than medical students or their specialist colleagues to want to remain in the locations of their training.

Rabinowitz et al. (1999b) argued that ascertaining interest in family medicine amongst students at entry to medical school was very important, because initial career choice is an important predictor of eventual career and students tend not to switch to family medicine if it was not considered at the outset. Wright et al. (2004), at the University of Calgary, sought to understand career preferences of students on entry to medical school and the factors that influence them in choosing family medicine as a career. 519 students from five Canadian medical schools completed questionnaires (89% response rate) at the beginning of their medical studies. They were initially asked to rank their top three choices from a list of options (emergency medicine, family medicine, internal medicine, paediatrics, obstetrics and gynaecology, psychiatry and other. No rationale was provided for limiting the selection to eight broad domains. Possible variables influencing career choices were then identified from a literature review. A finalised list of 25 variables was generated following discussion with medical students, residents and physicians as well as preliminary piloting (Figure 14). Participants then rated (on a five point Likert scale) the degree to which items on the list of variables influenced their first choice.

Figure 14 Variables influencing career choice used on questionnaire

Wright, B., Scott, I., Woloschuk, W., Brenneis, F. & Bradley, J. (2004), Career choice of new medical students at three Canadian universities: family medicine versus specialty medicine, *Canadian Medical Association Journal*, **170**: 1921.

Factor analysis on first choice career patterns generated five factors explaining 52% of the variance (correlation (r) near 0.5 indicates positive relationship with first career choice whilst correlation near -0.5 indicates an inverse relationship) (Figure 15);

Factor 1	r= 0.16	Medical lifestyle (on call, flexible working and keeping options open)
Factor 2	r= 0.43	Societal orientation (long term commitment to patients, focus on community)
Factor 3	r=-0.13	Prestige (high status and high income)
Factor 4	r=-0.31	Hospital orientation (focus on inpatient and urgent care)
Factor 5	r= 0.43	Varied scope of practice

Figure 15 Factor analysis on first-choice career responses

Wright, B., Scott, I., Woloschuk, W., Brenneis, F. & Bradley, J. (2004), Career choice of new medical students at three Canadian universities: family medicine versus specialty medicine, *Canadian Medical Association Journal*, **170**: 1922.

Stepwise logistic regression revealed that Factors 2 and 5 had the strongest association with general practice as a first career choice. Odds ratios for predictor variables

associated with choosing family medicine as a first career were then calculated (see Table 9 below).

A fifth of students ranked general practice as first choice and an additional one third ranked it second or third. At least half of all students were considering general practice as a career at entry to medical school, although the majority regarded it as a 'back-up career'. Students opting for general practice tended to be concerned about lifestyle, to have completed their education in smaller communities, to be older, to specify a preference for a varied scope of practice and to show a societal orientation. In common with other studies into entry characteristics of medical students, this model identifies some key factors that impact on early career choices.

Table 9 Odds ratios for predictor variables associated with choosing family medicine first as a career

Variables	Crude OR (95% CI)	Adjusted OR (95% CI)
Factor 2: societal orientation	5.57 (3.79–8.18)	4.81 (3.05–7.61)
Factor 5: varied scope of practice	3.66 (2.71–4.93)	4.26 (2.86–6.36)
Factor 4: hospital orientation	0.42 (0.32–0.54)	0.37 (0.25–0.55)
Age*	1.18 (1.11–1.25)	1.13 (1.04–1.23)
Factor 1: medical lifestyle	1.64 (1.25–2.15)	1.61 (1.06–2.43)
Population of community where high school completed†	1.51 (1.27–1.80)	1.32 (1.03–1.70)

Note: CI = confidence interval.
*OR per year of age increase.
†OR per population category decrease.

Wright, B., Scott, I., Woloschuk, W., Brenneis, F. & Bradley, J. (2004), Career choice of new medical students at three Canadian universities: family medicine versus specialty medicine, *Canadian Medical Association Journal*, **170**: 1923.

Scott et al. (2010) collected data relating to career choice and attitudes to practice from students at entry to eight out of sixteen Canadian medical schools between 2002 and 2004. 1542 students were followed prospectively and their data linked with their residency choice. Eleven entry variables predicted whether students named family medicine as their top residency choice including being older, not having parents with postgraduate university education, not having friends or family practising medicine, being in a long term relationship, not having undertaken voluntary work or worked with

elderly people, being interested in a varied scope of practice, wishing a short postgraduate training period, having a societal orientation and being less interested in research and having a lower preference for medical versus social problems. Unlike other studies (Senf et al., 2003) gender was not found to be a predictor at medical school entry of a family practice residency choice. This was felt to be due to the increasing number of women in medical schools. The researchers repeated the collection of career related data on completion of training among study participants and found that only relationships, volunteer work in developing nations and parental education endured throughout undergraduate medical education as predictors of family residency choice.

4.2.3 Changing career decisions

Scott et al. (2007b) also investigated why preclinical medical students change their career intent. Canadian students entering 10 medical schools at eight universities were asked to complete a questionnaire that ranked their top three career choices. At the end of their preclinical years respondents were asked to review their original choices and provide their most recent preference from a list including emergency medicine, family practice, internal medicine, obstetrics and gynaecology, paediatrics, psychiatry and other. The second questionnaire contained 30 items, scored on a Likert scale, recording the ‘influence of medical school experience’ on career choice. The items were derived from a literature review and in discussion with stakeholders. Subsequent factor analysis of data using an eigenvalue > 1 and a minimal factor loading of 0.4 revealed a seven factor solution; medical lifestyle, encouragement by physician, discouragement by physician or negative clinical exposure, economics or politics, competence or skill, positive clinical experience and ease of residency entry (Figure 16).

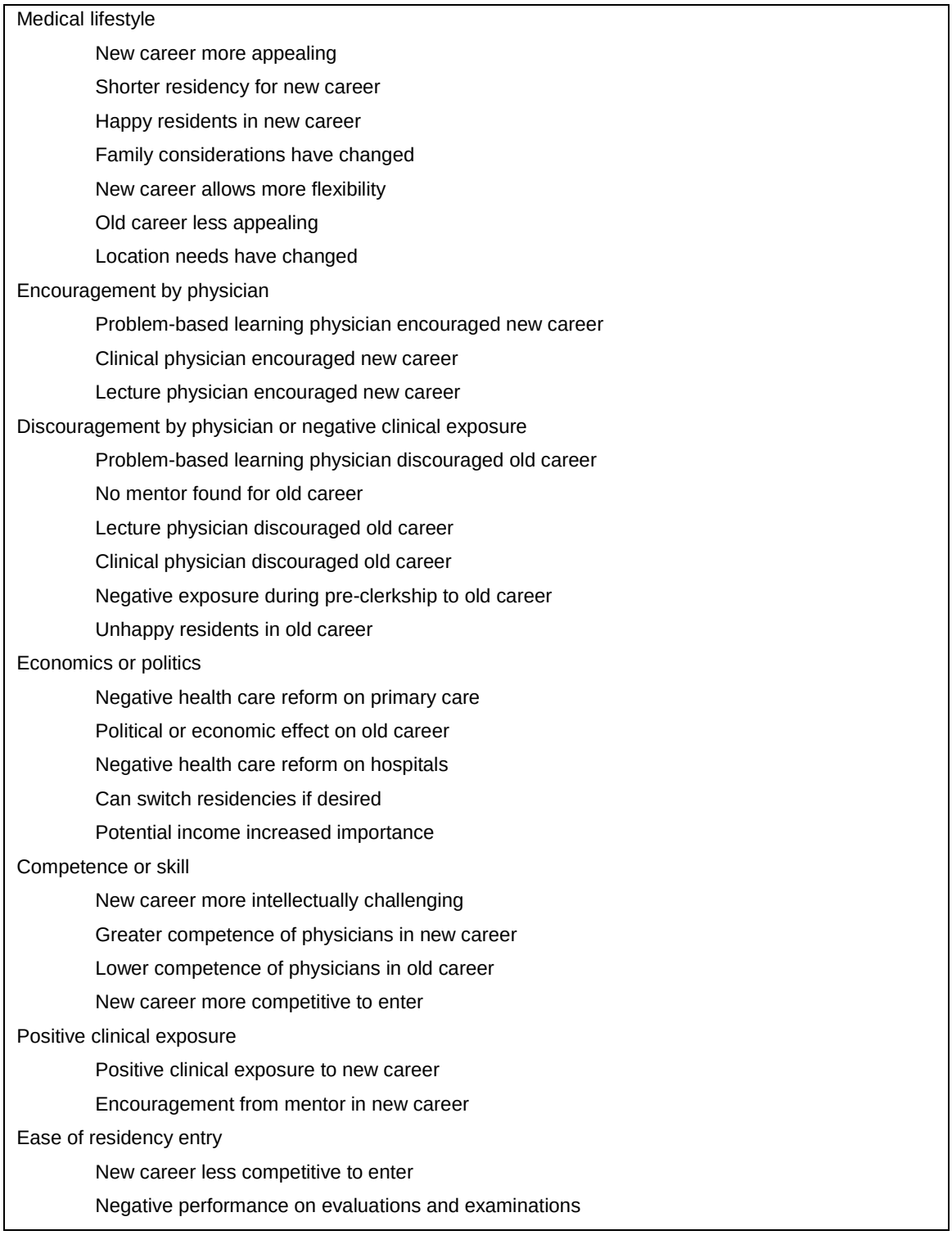


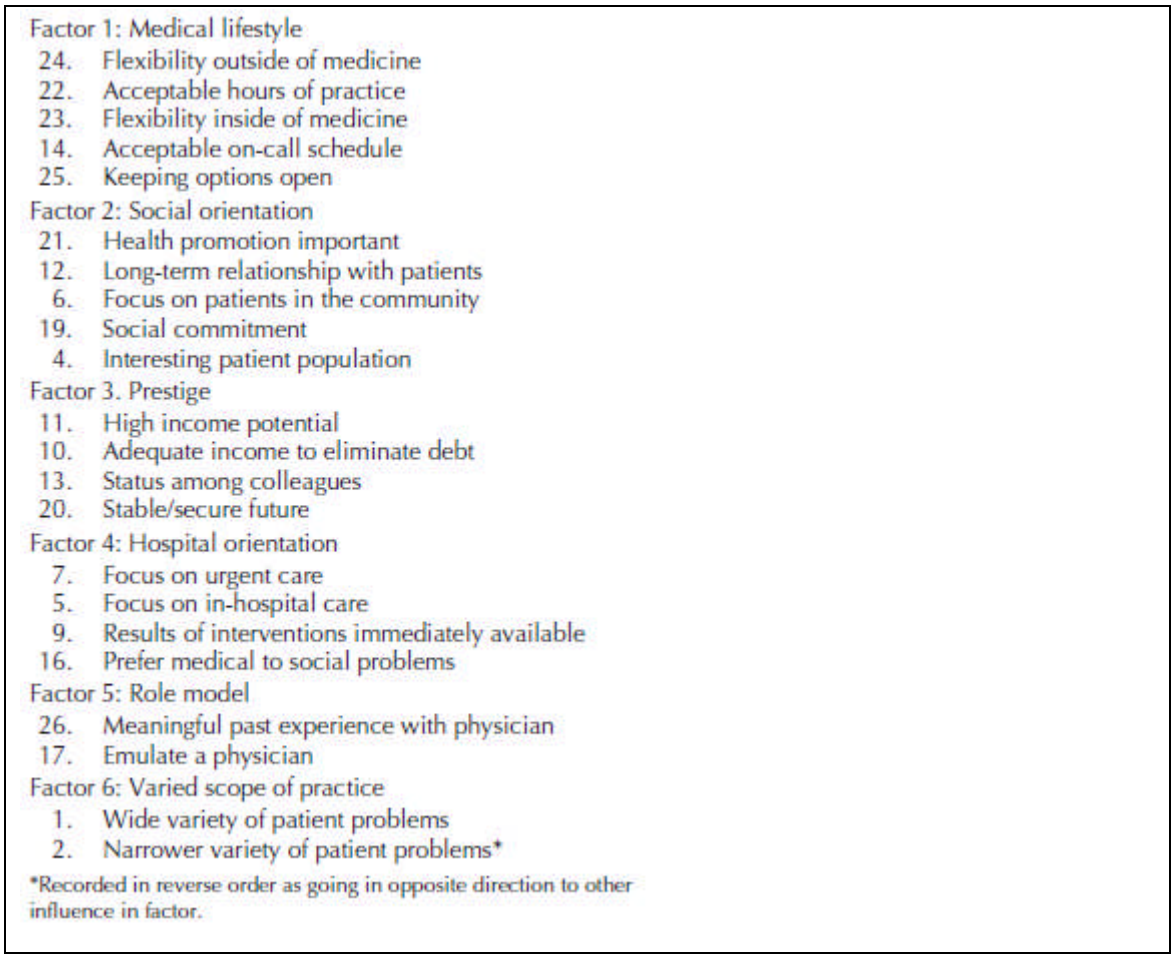
Figure 16 Factors influencing changes in career preferences

Scott, I., Gowans, M. C., Wright, B. & Brenneis, F. (2007b), Why medical students switch careers: changing course during the preclinical years of medical school, *Canadian Family Physician,* **53**: 95, 95:e 2, 94.

166 of the 845 students who responded with an initial career preference switched from family medicine to a specialty or vice versa. Medical lifestyle and ease of residency had higher ratings among those changing to family medicine whereas encouragement, positive clinical exposure, competence or skills and economics or politics were rated higher by those changing to a specialist path.

4.2.4 Rural practice as a career

Feldman et al. (2008) investigated the demographic characteristics of students interested in pursuing rural family practice in Canada. First year medical students from eight Canadian universities were asked to specify their three top career options from 9 options; emergency medicine, internal medicine, paediatrics, rural family practice, urban family practice, obstetrics and gynaecology, psychiatry, surgery and 'other'. Choices were then clustered into three groups and students were invited to rate the individual influence of 27 attitudinal variables on a five point Likert scale. Factor analysis on the dataset revealed 6 attitudinal factors (Figure 17) as well as demographic differences according to career choice (Table 10).



Factor 1: Medical lifestyle
24. Flexibility outside of medicine
22. Acceptable hours of practice
23. Flexibility inside of medicine
14. Acceptable on-call schedule
25. Keeping options open

Factor 2: Social orientation
21. Health promotion important
12. Long-term relationship with patients
6. Focus on patients in the community
19. Social commitment
4. Interesting patient population

Factor 3. Prestige
11. High income potential
10. Adequate income to eliminate debt
13. Status among colleagues
20. Stable/secure future

Factor 4: Hospital orientation
7. Focus on urgent care
5. Focus on in-hospital care
9. Results of interventions immediately available
16. Prefer medical to social problems

Factor 5: Role model
26. Meaningful past experience with physician
17. Emulate a physician

Factor 6: Varied scope of practice
1. Wide variety of patient problems
2. Narrower variety of patient problems*

*Recorded in reverse order as going in opposite direction to other influence in factor.

Figure 17 Factors and underlying influences on career choice

Feldman, K., Woloschuk, W., Gowans, M., Delva, D., Brenneis, F., Wright, B. & Scott, I. (2008), The difference between medical students interested in rural family medicine versus urban family or specialty medicine, *Canadian Journal of Rural Medicine*, **13**: 75.

In terms of attitudinal leanings those interested in becoming rural practitioners tended to have a more 'social orientation' than their counterparts interested in specialising, and cited variety in practice as more important than professional prestige. Those family doctors involved in rural practice regarded lifestyle issues as important, but less so than their colleagues planning a career in urban practice. They did not regard attributes focussed on urgent care, or 'hospital orientation', as 'motivating' factors for a career in family medicine.

Table 10 Demographic differences according to career choice

Demographic	Career choice; % of students*			
	Rural family medicine, $n = 211$	Urban family medicine, $n = 284$	Specialty, $n = 1410$	p value
Age, yr	25.9	24.7	—	0.101
	25.9	—	23.7	< 0.001
	—	24.7	23.7	< 0.001
Female sex	60.8	72.0	—	0.009
	60.8	—	53.7	0.055
	—	72.0	53.7	< 0.001
Relationship status (single)	54.5	65.6	—	0.013
	54.5	—	74.0	< 0.001
	—	65.6	74.0	0.004
Premedical education (science)	90.1	90.8	—	0.784
	90.1	—	92.0	0.367
	—	90.8	92.0	0.535
Postgraduate education	14.7	20.4	—	0.101
	14.7	—	19.9	0.075
	—	20.4	19.9	0.828
Parental education (university educated)	66.5	71.8	—	0.204
	66.5	—	77.5	0.001
	—	71.8	77.5	0.039
Family or friends in medicine	33.2	37.3	—	0.340
	33.2	—	40.7	0.037
	—	37.3	40.7	0.288
Family or friends in family medicine	23.7	23.9	—	0.949
	23.7	—	18.7	0.083
	—	23.9	18.7	0.040
Population of town where high school was completed < 50 000	53.6	15.2	—	< 0.001
	53.6	—	18.3	< 0.001
	—	15.2	18.3	0.217
Rural parents	57.8	18.7	—	< 0.001
	57.8	—	18.6	< 0.001
	—	18.7	18.6	0.975
Rural grandparents	37.9	16.5	—	< 0.001
	37.9	—	19.1	< 0.001
	—	16.5	19.1	0.318
Rural siblings	33.2	10.2	—	< 0.001
	33.2	—	10.6	< 0.001
	—	10.2	10.6	0.858
Proposed work community (< 50 000)	69.6	6.3	—	< 0.001
	69.6	—	7.2	< 0.001
	—	6.3	7.2	0.674

*Unless otherwise indicated.

Feldman, K., Woloschuk, W., Gowans, M., Delva, D., Brenneis, F., Wright, B. & Scott, I. (2008), The difference between medical students interested in rural family medicine versus urban family or specialty medicine, *Canadian Journal of Rural Medicine*, **13**: 76.

Students who chose rural medicine at the outset of their undergraduate career were more likely be involved in a relationship and be older but were less likely to have had a parent with a university education. They were also more likely to have lived in a rural setting, been educated at a rural school and have parents or grandparents who lived in rural communities.

There were gender differences in terms of career preference with more men than women expressing interest in rural family medicine or specialisation and more women intending to work in urban general practice than men.

4.2.5 Financial influences

Morra et al. (2009) at the University of Toronto investigated the role of accumulating debt during undergraduate studies on career choice. He surveyed 781 students across the four years of training and obtained a 72% response rate. The anticipated average debt on qualifying was $83,526. Students were asked to estimate the net pay of family physicians, paediatricians, dermatologists and general surgeons. These estimates were then compared with actual net pay of the specialties concerned as recorded by the Canadian Institute for Health Information (Table 11).

Table 11 Students' estimates of physician income compared with actual physician income

Physician Type	*Gross Pay (CIHI)**	*Average Overhead (CMA)***	*Net Pay (CIHI)**	Estimated Net Pay***					*Estimated-Actual*
				All	*Year 1*	*Year 2*	*Year 3*	*Year 4*	
Family physician	$188,344	37%	$118,656	$108,000	$107,000	$111,000	$107,000	$106,000	-$10,656
General surgeon	$300,750	29%	$213,532	$208,000	$201,000	$211,000	$208,000	$208,000	-$5,532
Pediatrician	$173,515	34%	$114,519	$134,000	$138,000	$141,000	$132,000	$124,000	+$19,481
Dermatologist	$293,321	30%	$205,324	$266,000	$251,000	$278,000	$260,000	$273,000	+$60,676

* Canadian Institute for Health Information—full-time physicians 2002–2003—gross billings for fee-for-service staff.[1]
** Average overhead expenses from Canadian Medical Association (CMA) National Physician Survey based on specialty.[2]
*** Students were asked to predict how much physicians made after expenses and before taxes.

Morra, D. J., Regehr, G. and Ginsburg, S. (2009), Medical students, money, and career selection: students' perception of financial factors and remuneration in family medicine, *Family Medicine,* **41**: 107.

Students were also asked to record their perceptions of general practice remuneration as they progressed through medical school (Table 12).

Table 12 Perception of remuneration by specialty and students considering family medicine

Statement	*Year 1 Students*	*Year 2 Students*	*Year 3 Students*	*Year 4 Students*	*Chi-Square*	P *Value*
Family physicians get paid too little. (% who agreed or strongly agreed)	85%	89%	88%	89%	1.04	.792
Specialists get paid too little. (% who agreed or strongly agreed)	19%	25%	34%	32%	7.96	<.05
Specialty career is a better way to clear debt. (% selecting this choice over alternative)	57%	63%	54%	64%	4.21	.24
I would not choose family medicine because of low financial remuneration. (% who agreed or strongly agreed)	15%	20%	29%	40%	21.87	<.001
Are you considering family medicine as a potential career? (% who answered yes)	72%	61%	57%	30%	44.36	<.001
Percent of students who rated payment as one of the top two most important factors in career selection.	0%	7%	9%	15%	14.62	<.005

Morra, D. J., Regehr, G. and Ginsburg, S. (2009), Medical students, money, and career selection: students' perception of financial factors and remuneration in family medicine, *Family Medicine*, **41**: 107.

In general, students' estimates of earnings by specialty were very accurate with the exception of dermatology. The vast majority (85-89% of each year) agreed that family physicians were paid too little. Two thirds agreed with the statement 'It is better to do a specialty as you will make more money and be able to pay off your debt faster'. Among first year students 70% were considering a career in general practice. By their fourth year this percentage had dropped to 30%. Whilst 15% of first year students gave low remuneration as a reason for shunning general practice, this proportion had risen to 40% by the end of training. When asked to rank factors important in career selection (everyday work, short residency, lifestyle, intellectual content, patient population, remuneration and 'others') fourth year students were more likely to cite pay as one of the most important factors than were the first year students. The authors suggested that 'students in first year might be less comfortable admitting that they would not consider a domain of practice because of low income potential, whereas the fourth years might be more honest (or cynical)'. Rosenblatt & Andrilla (2005) also showed that students with higher debt (greater than $100,000) were more likely to report pay as one of the top two factors in career choice. The authors suggested that, whilst 'debt itself does not seem to be a direct factor in career decision making', debt level 'seems to have an influence on the relative importance of future income' as well as increasing 'students' negative perceptions of physician payment in family medicine'. The possibility of

increased debt burden resulting in further movement away from family medicine as a career choice among new medical graduates is raised as a real possibility.

4.3 Europe

4.3.1 Declining interest in general practice

Buddeberg-Fischer et al. (2008a) compared demographic features, personality, career motivation, career success, life goals and need for work-life balance between those intending to become family practitioners and those seeking careers in other specialties. Their cohort of 543 graduates from three German speaking medical schools in Switzerland has been surveyed since 2001, and 504 (232 male, 272 female) were included in the interim analysis in 2007. The instruments used were:

1 A sense of coherence scale
2 A measure of individual's ability to manage stress (SOC 13)
3 A personality attributes questionnaire
4 A self-assessment of gender role orientation (GE-PAQ)
5 A career motivation questionnaire (CMQ)
6 An assessment of enjoyment, interest, ambition, working patterns and job security
7 A subjective and objective measurement of career success
8 A life goals questionnaire (GOALS), which examines long term life goals in relation to intimacy, affiliation, altruism, power, achievement and variation
9 Models looking at work family and work-life balance

The results using multivariate analysis showed that family physicians are more often married with children than other specialists. They have lower career motivation with higher extra professional concerns and there is a strong emphasis on part time working. The authors point out the very significant impact, in workforce planning terms, of increasing part time working among male as well as female graduates embarking on a career in general practice.

The same group also looked at factors that might make family practice a more attractive proposition to young resident physicians within their prospective study (Buddeberg-

Fischer et al, 2008b). They found that the main deterrents to a career in general practice were low income and uncertainty in health care policy. The main attractions were centred on continuity of care and diversity of daily work. Contact with a broad range of patients and close doctor-patient relationships were also seen as positive features of family medicine.

The Zurich group, within their ongoing prospective cohort study, has also looked at the primary care aspirations of third-year medical students in three Swiss medical schools and the extent to which their original goals were adhered to in subsequent years (Buddeberg-Fischer et al., 2006). Participants were studied serially from 2001 to 2005. Their third assessment in 2005 showed that only 9.7%, 42 out of the 434 residents who had decided on a medical career had chosen primary care. 12 of the 42 had consistently cited primary care as their career goal from graduation through to residency. 30 decided on primary care during their residency; but 19, who had chosen general practice on graduation or shortly thereafter, had moved away from the specialty by the end of their three year residency. It was considered that the early years of residency had more impact on career choice (as evidenced by the 'specialty switching' during that period) than general practice teaching experience during medical school. Basle medical school had offered one to one tutorials in private practice for year 3 and 4 students but did not generate more physicians expressing interest in a general practice career than the other two participating medical schools.

The authors concluded that;

> The trend away from primary care to other specialties is noticeable in Switzerland as well as many other Western countries, and is even greater in competition-based health-care systems than in state-administered ones. If nothing changes, there will be a significant shortage of primary care physicians in the near future. Looking at the demographic trend of the population, the number of older, poly-morbid and chronically ill patients will increase. Such people need a medical coordinator, i.e. an optimally qualified primary care physician, rather than specialists for each individual illness. This is also important from the point of view of cost containment within the health-care system.

Beaulieu et al. (2006) explored perceptions of general practice as a discipline among those trainees who had completed their general practice attachments. Twenty eight

trainees, drawn from graduates of one Belgian and two French universities, took part in five focus groups, each of ninety minutes duration, in 2004. Two specific dimensions were investigated; the perceived role of general practitioners in healthcare systems and trainees' views of their future careers in the discipline. Transcripts were analyzed independently and emerging themes to the two dimensions identified. Three career strands were evident; (1) flexible careers (the ability to shape careers to personal situations and interests), (2) demanding careers (positive experiences of fulfilling and continuous patient relationships had to be balanced against the need for a better balance between work and personal life) and (3) lack of appeal of 'entrepreneurship' (a general feeling of ambivalence towards the business aspects of general practice). Besides expressed concern about commitment to practices early in career paths, there was anxiety about the 'growing infringement of the state on professional autonomy'. This was also reported by Bowler & Jackson (2002) on page 23**.** In addition some doctors worried about potential adverse effects on their relationships with patients when cost constraint imperatives clashed with their role as patient advocates.

4.3.2 Factors influencing career choice

Social expectations for life-work balance were also noted among medical specialists in the Netherlands, where Heiliger & Hingstman (2000) studied clinicians from five specialties (general practice, internal medicine, anaesthesiology, ophthalmology and psychiatry). They focused on gender differences and career preference. Those in full-time work had the greatest desire to reduce their working time, especially women. However, men with young children also sought reduced working hours. In general hospitals, specialists looked less favourably on part time working than their primary care colleagues. The authors argued that 'flexible careers related to home domain determinants or other activities will reinforce a life cycle approach, in which the centrality of work is decreasing'.

Soethout et al. (2008) examined the influence of student background characteristics and their academic achievement, with a particular focus on changes in career preferences at different stages of training. Evidence was gathered from questionnaire responses in two Dutch medical schools in 2002. The expectation that specialty preference at the start of medical school was strongly associated with parental education level and medical

background, and that this effect weakens as students experience different specialties during their undergraduate years, was borne out by the study results. Students were more likely to put general practice as their preferred career if they were female and one of their parents was a general practitioner. It was also found that general practice experience during training, in particular, led to enhanced preference for general practice as a final career option. Associations between academic achievement and career preference were generally weak.

Swiss researchers have examined factors that influence young physicians in training to work in general practice as well as their perception of the competences required to do so (Hasler et al., 2008). Content analysis of responses to a questionnaire revealed a set of motivational categories (variety of practice, long term care, patient-doctor relationships, independence, broad spectrum of patients and disease) and core competences (broad medical knowledge, social competence, health economic and insurance related competences).

Rabadan & Hidalgo (2010) tested the hypothesis that medical students who took a course in primary care during their second year would develop more 'positive' attitudes towards family medicine. Students at Albacete Medical School were asked to complete a 34 item validated questionnaire, using a five point Likert scale, at the beginning and end of the four month course in primary care. Forty four students (54.3% of those invited to participate in the study) completed both questionnaires. While fewer students rejected 'the notion of a primary care career' on completion of the course, than at the start (70.4% versus 38.6%) the percentage of study participants reporting primary care as their first career choice remained unchanged at 11.4%.

4.3.3 Gender and career preference

A longitudinal cohort study of gender-related differences in general practice preferences among Dutch general practitioners was conducted between 1982 and 2001 (Maiorova et al., 2005) (Figure 18).

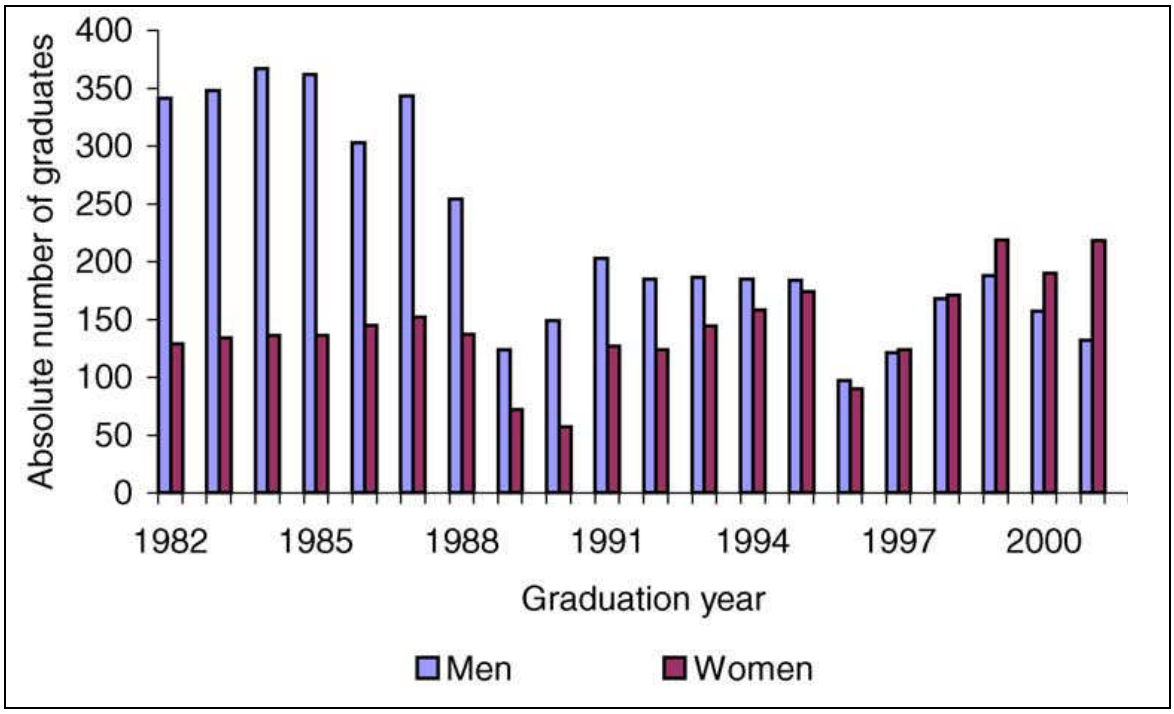


Figure 18 Annual numbers of graduated male and female general practitioners in the Netherlands between 1982 and 2001(n = 7234)

Maiorova, T., Stevens, F., Scherpbier, A., van der Velden, L. & van der Zee, J. (2005), Gender-related differences in general practice preferences: longitudinal evidence from the Netherlands 1982-2001, *Health Policy,* **72**: 75.

This was set against a background of an increasing proportion of medical graduates being female and a general fall off in popularity of general practice, particularly among males. Dutch general practitioners were sent questionnaires a year following completion of their general practice training and were sent annual questionnaires until they settled in a general practice or had given up trying to find suitable work. These collected data on gender, age, undergraduate and postgraduate training, current employment, practice size and employment status. By 2001 the general practice female workforce had increased to 62%.

Rather than describe this as the 'feminisation' of the general practice population the authors alluded to 'de-masculinisation'. In general women wanted to be part of small practices and work less than full-time; and they were more likely to work as associates, rather than partners. Whereas men found it difficult to choose a satisfying medical

career, women tended to mould careers around their domestic situations (Johnson et al., 1998).

The authors conclude by drawing attention to Vaughan's assertion that;

> Women have always fitted their work into their lives, and an increasing number of men are attracted by this option (Vaughan, 1995).

Several other studies have reported that women prefer community-based work while men opt for work in hospital settings (Howe & Ives, 2001; Ward et al., 2004). Yet many researchers (Lawrence et al., 2003; Levinson & Lurie, 2004; McKinstry et al., 2006) have noted that, despite 'steady feminization of medicine' throughout the developed world, the recruitment difficulties for general practice have remained.

Zinn et al. (2001) reported a decline in primary care interest among medical students towards the end of their undergraduate training. In addition, 'the question of a balance between work and private life' was found to be less important at the undergraduate stage with students more likely to make their choices based on career content. It was postulated that lifestyle becomes a more important issue later in women's careers. He suggested that motivational guidance during general practice clerkships might help students' retain interest in general practice as a career option. They further advocated that research needs to be carried on a longitudinal basis looking at why students 'abandon the option to become a GP', in order to better understand the factors that influence career decisions following graduation.

Maiorova et al. (2008a) from the University of Maastricht investigated the impact of clinical experience and gender on medical student career choice in three student cohorts, before and after clinical clerkships in surgery (n=200), medicine (n=277) and general practice (n=184). They found, in general, that 'exposure' to each clinical setting increased the likelihood of individual students pursuing a career in that particular specialty. Students interested in general practice were predominantly motivated by lifestyle issues and were much less concerned about prestige and technology, when compared to those interested in surgery. They also investigated gender and career preference among male and female students undertaking a GP clerkship (Maiorova et al,

2008b). They asked 206 final year students at the University to complete a career preference questionnaire before and after general practice clerkship and on graduating two months later. Females showed higher preference overall for general practice as a career. Immediately following the clerkship, this preference had increased by 38% among male students and 22% among females. But by graduation interest levels had fallen, particularly among female students. They concluded there was little substantial difference now between male and females' interest in general practice (Figure 19).

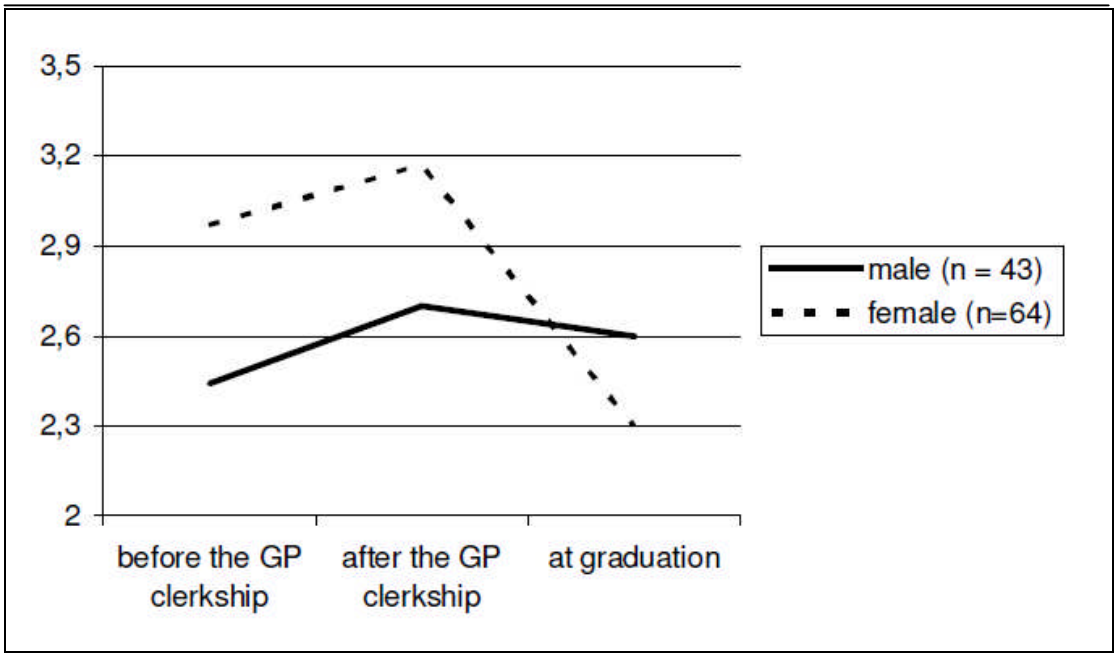


Figure 19 Mean score of the likelihood of becoming a GP before and after a GP clerkship and after the graduation of medical students of the Maastricht University in 2002/03. The mean score scale from 1=unlikely to 5= highly likely, N= 107

Maiorova, T., Stevens, F., van der Zee, J., Boode, B. & Scherpbier, A. (2008b), Shortage in general practice despite the feminisation of the medical workforce: a seeming paradox? A cohort study http://www.biomedcentral.com/1472-6963/8/262.

The positive effects of the general practice clerkship, in terms of encouraging students to consider a career in general practice, were short-lived. This may have been related to other clerkships in final year attracting students away from general practice.

The effect of balancing work and private life was evident among doctors in other specialties and was not a unique feature of general practice. Pas et al. (2008) surveyed

107 doctors (72 women and 35 men), including medicine, surgery and general practice, to gather information on career motivators and family friendliness at work. Both male and female doctors aspired equally to achieving senior positions. Family friendly work conditions benefited male and females in terms of career preference, but the removal of career barriers was seen as more important for female doctors in particular.

4.3.4 Working patterns and career choice

Doctors are generally less prepared to work the long hours of their predecessors. Some UK studies have suggested that quality of life issues can result in abandonment of initial career choice with doctors finding themselves working in specialties, eleven years post graduation, that they did not initially choose (Edwards et al., 1997; Evans et al., 2000; Lambert et al., 2003a).

In an attempt to understand doctors changing patterns of career aspiration against a background of a more demand orientated health care system, van Offenbeek et al. (2006) developed a novel categorization of medical student career intent aimed at matching medical students' career aspirations with newly designed medical occupations. Items derived from interviews with 11 leading experts, representing 6 stakeholder groups, generated a list of proposed medical occupations and associated job characteristics that distinguished these occupations, which then formed the basis of a questionnaire for students at four Dutch medical schools. The analysis of responses revealed 4 distinct clusters of students: patient-oriented experts (preferred focus is on psychosocial rather than technical issues), career-oriented specialists (aim to work in highly technical field in hospital setting), lifestyle-oriented generalists (flexible work to fit in with private lives), balance seeking realists (reasonable income and hospital based).

Those designing new medical occupations wanted more flexible, patient-oriented doctors who had shorter periods of postgraduate training. Only students with career-oriented specialist intentions expressed willingness to work long and unpredictable hours. However, the shorter postgraduate training proposals of newer occupations offered a more acceptable alternative to other clusters.

4.4 Australia and New Zealand

4.4.1 Declining interest in general practice

In a retrospective longitudinal survey of four cohorts of Australian medical graduates from Monash University Medical School (graduating in 1980, 1985, 1990 and 1995) Joyce & McNeil (2006) found a rapidly declining number of recent graduates choosing general practice as a career (Figure 20). This effect was largely due to fewer female graduates opting to become general practitioners.

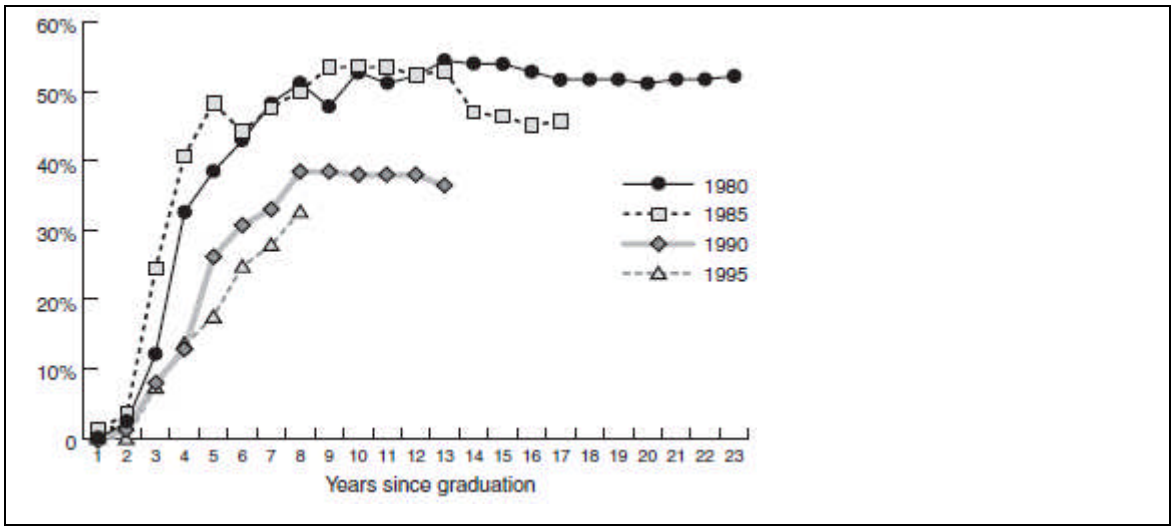


Figure 20 Proportion of each cohort working in general practice, by years since graduation

Joyce, C. M. & McNeil, J. J. (2006), Fewer medical graduates are choosing general practice: a comparison of four cohorts, 1980-1995, *Medical Journal of Australia*, **185**: 104.

Several factors were thought to contribute to this diminished interest and included;

- The perception that general practice is less prestigious than other specialties. This was in part due to the technological advances in specialties and to general practice being seen as 'less challenging'

- General practice trainees regarded the 'intellectual content of the specialty' to be less important in making a choice than did specialist trainees

- High workload, poor morale and poor job satisfaction

- Heightened training requirements and the introduction of compulsory vocational training for general practitioners

- Introduction of compulsory rural placements. These are particularly unpopular for women with family or domestic commitments

Female graduates had moved into specialties such as paediatrics, psychiatry, emergency medicine and geriatrics. This is in part due to these specialties offering the opportunity to work flexibly and take account of individual domestic circumstances. The authors warned that sustaining a health care model with general practitioners as key participants is unlikely to be achieved with current Australian graduates. They advocate strategies that improve the attractiveness of general practice including better marketing with emphasis on the opportunities to work flexibly, in particular. They also suggest that delegation of routine tasks to other health care practitioners might allow general practitioners to spend time on more interesting elements of their work.

Del Mar et al. (2003) reviewed the reasons underlying general practice recruitment problems and explored generic factors that had contributed to the decline. The review highlighted the poorer intellectual status of general practice within the profession as well as poorer earning potential, when compared to specialist colleagues. In addition it was noted that general practitioners, in spite of their very large numbers, generate very few publications.

A number of initiatives have been tried in order to empower general practitioners. These include the introduction of systems that put general practitioners at the centre of ‘resource allocation’. One example in the UK was fundholding. Under this arrangement practices held budgets for their patients’ care and were able to purchase care on behalf of their patients from a range of health care providers. In the USA ‘managed care’ emphasised the gatekeeper role of general practitioners. Similar systems have been introduced in the Netherlands and New Zealand. These systems, however, have lead to health care cost containment increasingly falling to general practice against a

background of increasing patient expectation and inadequate resources for general practice.

The main recommendation of the review, in order to attract doctors into general practice, was to strengthen the intellectual performance of general practitioners through better critical thinking. Suggested initiatives included developing stronger academic family medicine departments, creating research networks, encouraging clinical research into specific problems and providing academic registrar positions.

4.4.2 Factors influencing career choice

Ward et al. (2004) examined career choice among 229 students who started medical school at the University of Western Australia between 1984 and 1989. Data were gathered from Year 1 students including demographic details, career expectations and school performance (including final school marks and admission scores). Students were also asked to complete the Medical Opinion Survey, an adaptation of the Canadian Attitudes to Social Issues in Medicine (ATSIM) scale.(Streit, 1980) and elements of the Cattell 16 Personality Factor Questionnaire (16PF) (Tsukioka & Cattell, 1965). Career outcomes, including specialty and practice location, were assessed by interview or postal questionnaire four years after qualification. Those with higher admission scores and higher 16PF scores (indicating social boldness, thick-skinned, uninhibited and spontaneous in affect) were more likely to complete their undergraduate training. Male medical students were found to be more ‘easy going, sensitive and attuned to their feelings’ than female students who were more ‘reserved, self reliant and realistic’. Females were thought to be more ‘decisive and resilient’. Todisco et al. (1995) looked at career motivations of male and female medical students and found little gender difference. 645 Australian medical students were asked to record factors that attracted them to medicine as a career. A wish to help others and meeting the intellectual challenge of medicine were the most powerful motivators, while status and prestige were considered less important.

Harris et al. (2005) investigated the factors influencing the specialty choice of 7906 Australian medical graduates registered with clinical college training programmes in 2002 and sought answers to three career related questions;

- What were the most influential intrinsic and extrinsic determinants of specialty choice?
- What were the effects of demographic characteristics?
- When do doctors make their decisions about their preferred specialty?

Intrinsic factors included personal strengths and preferences, birthplace, number of children and gender. Extrinsic effects such as training programmes, employment conditions and the impact of other influential individuals were taken into account.

Doctors were categorized according to their career timing; the end of medical school and for postgraduate years one, two and three, four and five and beyond six. As far as general practice trainees were concerned they were particularly influenced by the number of years to complete training, flexible hours, domestic circumstances, student experiences and opportunities for helping people (Table 13).

Table 13 Extrinsic and intrinsic factors influencing choice of specialty of Australian doctors in vocational training, by general practice trainees and trainees in other clinical specialties, 2002

Factors influencing choice of specialty	Total rating factor as influential (ie, 3 or 4 on a Likert scale of 0–4)	General practice trainees		Trainees in other specialties		Odds ratio†
		No. of trainees	Mean score (Likert scale)*	No. of trainees	Mean score (Likert scale)*	
Extrinsic factors						
Work culture typical of the specialty	3051/4229 (72.1%)	744	2.8	3451	2.9	1.0
Work experience since graduation	2715/4228 (64.2%)	742	1.8	3452	2.8	0.6§
Opportunity to work flexible hours	2347/4220 (55.6%)	741	3.4	3445	2.2	1.8§
Influence of consultants/mentors	2331/4222 (55.2%)	740	1.5	3449	2.6	0.7§
Hours of work typical of the specialty	2290/4223 (54.2%)	745	3.3	3444	2.2	0.8
Opportunity to do procedural work	2204/4229 (52.1%)	744	1.8	3451	2.3	1.2
Type of patients	2173/4212 (51.6%)	740	2.4	3438	2.3	1.2
Experience as a medical student	1721/4224 (40.7%)	740	1.9	3450	1.9	1.3‡
Availability of training placement	1342/4214 (31.8%)	739	2.0	3441	1.7	0.9
Opportunity for research/teaching	1272/4225 (30.1%)	742	1.4	3449	1.8	0.9
Years required to complete training	874/4220 (20.7%)	742	2.7	3444	1.1	3.1§
Risk of litigation/insurance costs	480/4224 (11.4%)	743	1.3	3447	1.0	0.8
Cost of training in the specialty	234/4224 (5.5%)	741	0.9	3449	0.6	1.6
Intrinsic factors						
Appraisal of own skills and aptitudes	3340/4219 (79.2%)	742	3.0	3443	3.0	0.8
Intellectual content of the specialty	3156/4223 (74.7%)	743	2.3	3447	3.1	0.6§
Interest in helping people	3122/4216 (74.1%)	740	3.2	3442	2.9	1.6§
Job security prospects	2004/4224 (47.4%)	742	2.4	3448	2.2	0.9
Domestic circumstances	1828/4201 (43.5%)	738	3.0	3429	1.9	1.3‡
Advancement prospects	1373/4218 (32.6%)	744	1.4	3440	1.9	0.8
Prestige of discipline	716/4208 (17.0%)	740	0.9	3434	1.3	1.0
Financial prospects	693/4219 (16.4%)	743	1.1	3442	1.3	0.9
Parents/relatives	288/4261 (6.8%)	740	0.9	3451	0.6	1.3
Other factors	359/1031 (34.8%)	192	1.8	831	5.1	1.1

* Mean score on a Likert scale of 0–4.

† The odds ratios (OR) are derived from ordinal regression analysis after controlling for sex, age, marital status, children, rural background and visa status (Australian citizen/Permanent resident). The OR provides a close approximation of the "relative risk". An odds ratio of "1.0" indicates no difference between GP trainees and trainees in the other specialist training programs; a score > 1 indicates that GP trainees are more likely to give the factor a higher rating than trainees in the other programs, while a score < 1 indicates the reverse.

‡ Statistical significance, $P < 0.05$; § Statistical significance, $P < 0.01$.

Harris, M. G., Gavel, P. H. & Young, J. R. (2005), Factors influencing the choice of specialty of Australian medical graduates, *Medical Journal of Australia*,**183**: 298

Females valued flexible working and hours of work more than their male peers. A similar pattern was found when comparing partnered doctors to those who were single. Younger doctors were more affected than their older colleagues by their medical student experiences.

Under a quarter of current GPs had made up their minds about their careers by the end of medical school. A further 59.3% then decided by the end of the third postgraduate year with 9.1% doing so six years or more after qualification (Table 14).

Table 14 Timing of decision on specialty training program of doctors in vocational training in Australia, by training program, 2002

Training program	By end of medical school	Postgraduate year				Total
		1	2–3	4–5	⩾6	
Adult medicine (*n* = 793)	13.4%	16.0%	47.2%	10.1%	13.3%	100.0%
General practice (*n* = 743)	24.5%	22.2%	37.1%	7.0%	9.1%	100.0%
Surgery (*n* = 674)	40.7%	28.5%	23.7%	3.6%	3.6%	100.0%
Anaesthesia (*n* = 507)	7.9%	10.5%	58.0%	12.6%	11.1%	100.0%
Emergency medicine (*n* = 408)	4.7%	11.5%	55.9%	13%	14.9%	100.0%
Psychiatry (*n* = 359)	16.7%	7.2%	40.7%	7.2%	28.1%	100.0%
Paediatrics and child health (*n* = 273)	28.9%	13.2%	45.1%	9.5%	3.3%	100.0%
Radiology (*n* = 153)	11.1%	11.1%	51.6%	17.6%	8.5%	100.0%
Obstetrics and gynaecology (*n* = 128)	25.8%	13.3%	47.7%	7.0%	6.3%	100.0%
Pathology (*n* = 126)	15.1%	12.7%	39.7%	13.5%	19.1%	100.0%
Ophthalmology (*n* = 69)	31.9%	14.5%	44.9%	2.9%	5.7%	100.0%
Total (*n* = 4233)	**20.1%**	**16.7%**	**43.0%**	**9.0%**	**11.2%**	**100.0%**

Harris, M. G., Gavel, P. H. & Young, J. R. (2005), Factors influencing the choice of specialty of Australian medical graduates, *Medical Journal of Australia*,**183**: 297

The authors emphasized the need for planners to take account of female motivators for career choice i.e. 'flexible work arrangements and reasonable working hours' as well as the key influence of medical school and the first three postgraduate years in doctors' early decision making processes.

Career preferences have been determined among New Zealand final year medical students as well as junior doctors in their first to fourth postgraduate year (Zarkovic et al., 2006). Medicine, surgery, general practice, paediatrics and obstetrics and gynaecology were the most popular choices.70% of final year medical students remained undecided on a career path. This dropped to 52%, 45% and 17% in postgraduate years 1, 2 and 2+ respectively. The need for continuing career advice throughout training was emphasized.

Data from the study showed that, four years after graduation, 30% of students had chosen general practice. Those with high 16PF scores (indicating higher scholastic

mental capacity, more abstract thinking and greater adherence to rules), whose fathers were doctors and who were male were less likely to have chosen general practice. Females showed a marked preference for general practice. Those who chose general practice and had lived in a rural location were more likely to select a rural practice, irrespective of the length of time they had lived in their rural location.

Investigators at the University of Sydney have highlighted the decline in popularity of general practice in Australia generally and the reluctance of medical students to embark on training programmes. Thistlethwaite et al. (2008a) found that the main factors influencing career decisions were pay, flexible working, quality clinical attachments and role models. He postulated that family medicine would increase in popularity (1) if pay for general practitioners were brought ‘in line’ with that of specialists and (2) if higher quality attachments in general practice were available during medical school in the immediate postgraduate training period.

Thistlethwaite et al. (2008b) conducted qualitative research under the auspices of the Australian Primary Health Care Institute to test whether factors reported in the literature as influencing career choices in medicine are ‘mirrored’ among current students and doctors**.** Thirteen medical students, five junior doctors, five general practice registrars and fifteen general practitioners were interviewed by telephone. Subjects were recruited through bulletins from the Royal Australian College of General Practitioners, notice boards at Sydney University, practices that took medical students from the University and volunteers from a Queensland hospital. Questions were based on a literature review and included positive and negative influences on career choice. Eight main themes were identified with associated sub-codes (Figure 21).

Theme family	Subcode
Factors affecting career choice in general (medical students and junior doctors only)	Medical education still mainly hospital based
	General practice seen as inferior choice during education
	Role models
General practice exposure at medical school and for junior doctors	Comparison of general practice with hospital
	Effect of general practice attachments
	Generalist versus specialist
	Having general practice exposure earlier during training
	More stimulating than expected
	Needs hands-on experience not just observation
	Perceptions of general practice while a student
	Sell general practice as a great job
	Prevocational General Practice Placements Program
The attractions of general practice as a career	Continuity of care
	Flexibility and hours
	Lifestyle
	Stimulating and lots of variety
	Working with people
	Autonomy
	Prestige
	Skill mix
	Social status
	Holistic care
Making general practice more attractive as a career option	Increase flexibility
	Reduce government interference
	Better communication between GPs
	Pay
	Portray as enjoyable career
	Doing procedures
	Enhanced recognition of GPs
	More support
	Less time pressure
	Students to gain better understanding of role
	Increase availability of part time training
What makes general practice unattractive?	Lack of support
	Not intellectually challenging
	Lack of time with patients
	Negative media coverage
	Lack of prestige
General practice teaching	Enjoyable to have students in practice
	General practitioners not trained to teach
	Remuneration factors
	Increases status
Teamwork and effects on choice	Attractions of interprofessional teams
	Lack of training in teamwork
	Team as support
	Teamwork important
Effects of rural attachments	Compulsory rural term
	Reasons for being rural GP
	Hard work

Figure 21 Factors influencing career choice; themes and sub-codes

Thistlethwaite, J., Kidd, M. R., Leeder, S., Shaw, T. & Corcoran, K. (2008a), Enhancing the choice of general practice as a career, *Australian Family Physician*, **37**: 966.

The participating subjects, both students and junior doctors, expressed a desire to work less than full-time and to have flexible working arrangements. They emphasised the need to ‘do the job’ rather than simply observe others during general practice attachments. Whilst long term and meaningful relationships, between patients and doctors, are regarded as ‘hallmarks’ of general practice, students experienced little of this during their short attachments. Besides lifestyle and relationship considerations, reasons for choosing general practice as a career included autonomy, continuity of care and breadth of exposure to patients and clinical conditions. Those interviewed cited lack of time, poor support and diminished prestige as drawbacks of a career in general practice with lack of intellectual challenge, poor role modelling and adverse media publicity contributing to the negative image of the family practitioner.

Thistlewaite et al. (2008b) also conducted a literature review of 198 international and Australian papers, along with one to one interviews of key stakeholders, in order to ‘explore the factors that affect career and practice location choices of medical students and junior doctors’. Factors that contributed to career choice included role models, clinical experience during training, remuneration and flexible working practices. They suggested that longer and higher quality attachments during medical school and in the early postgraduate years, as well as enhanced emphasis of the positive aspects of general practice, might improve recruitment (Figure 22).

Factor	Action	For	Against
Selection			
Medical school selection	▪ Positively discriminate for: • Female students • History of community service • Rural background • Older students	▪ Evidence that these factors affect career intentions in favour of general and rural practice	▪ Many people do not feel comfortable with positive discrimination ▪ More women are entering medicine anyway
Career choice at entry	▪ Select students stating a preference for general practice or rural practice	▪ Evidence that this predicts final career choice	▪ Potential students may not be honest ▪ Choice may not be made so early and may change, particularly for younger students
Academic ability	▪ Rather than targeting high achievers, give preference to students with: • a broad background • less interest in research	▪ Evidence that these students are more likely to choose general practice	▪ General practice also needs a research base and prestige to be enhanced as an academic specialty
Financial incentives	▪ Provide bonded places ▪ Provide grants	▪ Ties students into specific careers ▪ Reduces student debt	▪ Bonded places are not popular ▪ Grants are expensive
Graduate entry	▪ Increase graduate-entry places	▪ Some evidence this influences choice of general practice	▪ Lengthens study time
University — nurture			
Clinical attachments	▪ Make general practice and rural attachments: • Earlier • Longer • Multiple • Hands-on, with attention to quality	▪ Evidence that these affect career choice in favour of general or rural practice	▪ Need more general practitioners to host students ▪ Not all general practice placements allow students to have hands-on experience ▪ Need better funding model (and more money) ▪ Quality may suffer with increased quantity
GPs involved in teaching in medical schools	▪ Portray positive aspects of general practice ▪ Enhance prestige	▪ Enhances satisfaction for potential and current GPs	▪ None identified
Role models	▪ Increase number of GPs in faculty (movement in this direction with more medical school deans who are GPs) ▪ Attract quality GPs to teach and host students	▪ Enhances GPs' role in teaching and mentoring	▪ Are there enough GPs to do this? ▪ Cost ▪ Increasing number of medical students will put pressure on quality placement opportunities

Information about general practice as a career	▪ Emphasise the positive factors: • Diversity • Flexibility • Continuity of care • Procedures	▪ Quality general practice attachments can demonstrate a GP's work and lifestyle ▪ These factors attract people to general practice	▪ Potentially not enough quality attachments that demonstrate these
Career counselling	▪ Make good-quality career counselling readily available	▪ Desired by students and doctors	▪ Cost and resources ▪ Time issues in overcrowded curriculum
Prevocational			
Clinical attachments	▪ Make prevocational general practice placements more widely available	▪ Evidence starting to show positive effects	▪ Legal (indemnity) and cost implications ▪ Need more general practices to participate
General practice			
Remuneration	▪ Increase to be in line with specialists	▪ Would make general practice more attractive to some doctors	▪ Cost ▪ Potential that unsuitable doctors will enter general practice for the remuneration
Hours	▪ Enable flexibility	▪ An attractive factor	▪ Need more doctors to cover same amount of work ▪ Worsens workforce shortages
Prestige	▪ Enhance prestige by word of mouth ▪ Increase number of general practice researchers	▪ Enhances attractiveness for those who want an academic career	▪ None identified

Figure 22 Evidence and strategies for increasing recruitment to general practice

Thistlethwaite, J. E., Leeder, S. R., Kidd, M. R. & Shaw, T. (2008b), Addressing general practice workforce shortages: policy options, *Medical Journal of Australia*, **189**: 119.

Poole et al. (2008) looked at factors influencing doctors' career decisions among aspiring general physicians in New Zealand. Questionnaires seeking career intent were sent to students at the beginning of their undergraduate studies at the University of Auckland and on graduation in 2006. Over three quarters of those who responded to both questionnaires expressed an interest in pursuing general internal medicine as a career. A significant difference in 'strong interest' in general medicine was noted between those at the beginning of their studies and those at the end (23% versus 42%,

$p<0.0001$). There was a close correlation between ‘good experience’ in clinical attachments and expressed career intent. Other factors such as positive role models and flexible training models impacted on student career decision making processes. Debt influenced decisions in only 11% of students.

Bunker & Shadbolt’s (2009) comprehensive review of literature focussing on the influence of training and education on career choice found essential differences in the timing of career decisions between Canadian and US medical students and those from Australia and the UK. They suggested that only a minority of British and Australian medical students have a definite career choice at graduation whereas the majority of Canadian and US medical students have made up their minds. They attribute this to the need for those from North America to select elective terms for ‘streamed residencies’ while in medical school they have no other option. In contrast many from Australia and the UK decide on their career path in the years immediately following graduation. They argue that ‘appropriately timed, relevant, positive exposures to general practice and its practitioners may lead to more individuals considering it as a career’ but also highlight the paucity of evidence to support this policy – especially post graduation.

Medical specialty prestige and lifestyle preferences have been examined among first, middle and final years Australian medical students (Creed et al., 2010). The three groups of medical students were combined and two samples students were asked to rank 19 specialties according to their prestige (Table 15) and lifestyle friendliness (Table 16).

Table 15 Career prestige ranking among Australian medical students

Prestige rankings; $N = 530$.

Medical specialty	Total sample			Females ($N = 348$)			Males ($N = 182$)		
	Rank	*M*	SD	Rank	*M*	SD	Rank	*M*	SD
Surgery	1	2.53	2.64	1	2.60	2.59	1	2.40	2.73
Internal Medicine/Adult Medicine	2	4.21	2.96	2	4.22	2.90	2	4.20	3.07
Intensive Care Medicine	3	5.13	3.00	3	5.10	2.97	3	5.20	3.06
Anaesthesiology[a]	4	5.85	3.38	4	5.49	3.03	6	6.53	3.88
Emergency Medicine	5	5.97	3.34	5	5.78	3.39	5	6.35	3.22
Obstetrics/Gynaecology[a]	6	6.90	3.15	6	6.51	2.93	8	7.64	3.42
Ophthalmology[a]	7	7.12	4.29	8	7.53	4.38	4	6.33	4.02
Paediatrics/Child Health	8	7.33	3.00	7	7.24	2.88	7	7.52	3.22
Dermatology	9	9.74	4.77	9	9.59	4.71	9	10.04	4.88
Radiology	10	10.61	3.80	10	10.70	3.72	10	10.45	3.94
General Practice	11	11.29	3.87	12	11.52	3.87	11	10.85	3.85
Psychiatry	12	11.39	3.97	11	11.20	3.83	12	11.74	4.21
Rural Medicine	13	12.43	4.10	13	12.45	4.08	13	12.40	4.13
Pathology	14	12.65	3.24	14	12.69	3.19	14	12.58	3.35
Medical Administration	15	14.12	5.15	15	14.20	5.10	15	13.95	5.25
Rehabilitation Medicine	16	14.67	3.01	16	14.65	2.94	16	14.71	3.14
Non-specialist Hospital Practice	17	15.24	3.61	17	15.25	3.62	17	15.22	3.61
Occupational Medicine	18	15.96	2.51	18	16.10	2.46	18	15.69	2.58
Public Health Medicine	19	16.16	3.00	19	16.17	3.07	19	16.15	2.87

[a] *Note*: Significant gender differences (as specialty scores were not independent, we used *t*-tests with Bonferroni corrections, $p = .05/19 = .0026$, rather than multi-variate tests).

Creed, P. A., Searle, J. & Rogers, M. E. (2010), Medical specialty prestige and lifestyle preferences for medical students, *Social Science & Medicine,* 71: 1086.

Table 16 Lifestyle friendliness among Australian medical students

Lifestyle friendliness rankings; $N = 644$.

Medical specialty	Total sample			Females ($N = 418$)			Males ($N = 226$)		
	Rank	*M*	SD	Rank	*M*	SD	Rank	*M*	SD
Dermatology	1	3.84	3.16	1	3.92	3.09	1	3.71	3.30
General Practice	2	4.97	4.49	2	4.64	4.33	2	5.58	4.73
Public Health Medicine	3	6.19	3.97	3	5.88	3.94	3	6.78	3.98
Occupational Medicine	4	7.11	3.71	4	6.82	3.68	7	7.65	3.71
Pathology	5	7.29	3.71	5	7.11	3.59	6	7.61	3.91
Radiology	6	7.43	4.06	6	7.35	3.95	5	7.58	4.26
Ophthalmology	7	7.67	4.12	8	7.81	4.02	4	7.42	4.31
Rehabilitation Medicine	8	7.77	3.78	7	7.61	3.66	8	8.06	3.97
Psychiatry	9	8.88	4.06	9	8.93	4.01	9	8.79	4.15
Anaesthesiology	10	9.06	5.14	10	9.17	4.93	10	8.85	5.50
Medical Administration	11	9.33	5.44	11	9.42	5.44	11	9.17	5.46
Non-specialist Hospital Practice	12	10.82	4.49	12	10.55	4.53	12	11.33	4.37
Paediatrics/Child Health	13	11.78	3.41	13	11.70	3.39	13	11.92	3.46
Internal Medicine/Adult Medicine	14	12.84	3.58	14	12.96	3.51	14	12.60	3.71
Rural Medicine	15	13.17	5.28	15	13.39	5.17	15	12.76	5.46
Emergency Medicine	16	14.34	4.62	16	14.41	4.46	17	14.20	4.90
Intensive Care Medicine	17	14.45	3.20	17	14.62	3.02	16	14.12	3.50
Obstetrics/Gynaecology	18	15.28	3.67	18	15.44	3.63	18	14.98	3.73
Surgery[a]	19	16.93	3.51	19	17.27	2.89	19	16.30	4.36

[a] *Note*: Significant gender differences (Bonferroni $p = .0026$).

Creed, P. A., Searle, J. & Rogers, M. E. (2010), Medical specialty prestige and lifestyle preferences for medical students, *Social Science & Medicine,* 71: 1086.

There was general consensus on this observation within the study population with few differences based on gender or year of study. Although answering career specific questions was optional and response rates were unknown the authors maintained that prestige rankings were similar to those reported in other studies involving practising physicians, lay people and medical students with surgery and anaesthetics being ranked highest. It was hypothesised that higher income, longer training and competitive entry

explained this perception (Zhou, 2005). Those specialties with controllable working patterns (e.g. dermatology, general practice and public health medicine) were ranked highest in terms of lifestyle friendliness and, in contrast to findings in respect of prestige, surgery and intensive medicine recorded the lowest rankings.

4.4.3 Gender and general practice career choice

Shadbolt & Bunker (2009) recognise that the 'proportion of female graduates is increasing worldwide' and that 'traditionally women have rated flexibility and compatibility with family and domestic responsibilities as highly influential on career choice'. General practice is perceived to offer flexible training and working opportunities but other specialties have followed suit. This increased availability of flexible careers other than in general practice has contributed to a trend for Australian female graduates to reject general practice for specialties. They found that women are no more likely to choose general practice than men after allowing for lifestyle factors and flexible working. They argue that recruitment difficulties to general practice relate more to the fact that increasing numbers of doctors are not considering general practice initially. This is due to factors including 'misconceptions about the intellectual rigor' of general practice, poor previous general practice experiences and 'stereotyping' of general practice from within and outside the medical profession.

4.4.4 'Badmouthing' and general practice

Kamien et al. (1999) at the University of Western Australia investigated the impact of badmouthing on students' medical career choices. 170 5th and 6th year medical students were asked to retrospectively report comments heard from both teaching hospital specialists and general practitioners. In the previous year 78% reported hearing at least one negative comment about urban general practitioners and 50% about rural general practitioners. By comparison 59% had heard general practitioners comment negatively about specialists during the stipulated timeframe. Badmouthing had a significant effect on careers with 8% deciding not to become specialists, 12% forgoing urban general practice and 7% relinquishing thoughts of becoming a rural general practitioner. The authors noted that badmouthing of rural general practitioners in particular had declined

since a decade previously. They did, however, regard the level of badmouthing as ‘an unattractive part of the milieu of medical school’.

In a qualitative study of 82 first and final year Australian medical students in 2002 Tolhurst & Stewart (2005) revealed that approximately half the students involved in the 10 focus groups were interested in general practice. Students stated that they were attracted by the diversity of the work, continuity of care, community context, working conditions, including opportunities for flexible training and working and portability of qualifications. Negative factors included tedious work, the need to run a business, the range of knowledge needed, poor remuneration, over work in rural areas and the poor status of general practitioners generally. Some students had come across negative attitudes to general practice from the general practitioners who taught them; and this had a significant effect on their ultimate career choice.

Chapter 5 Summarising the Literature Review

The purpose of the literature review was to establish the existing knowledge of career decision making in medicine and, in particular, how career decisions are made as a medical student and in early years of clinical practice. Literature was collated under three headings; factors influencing career choice in the UK, evidence from other countries with similar degrees of general practice development and evidence from career decision making in occupations other than medicine. The review set the background to the study and contributed to design of the methods used to address the questions in the introduction.

5.1 Interest in general practice as a career

The literature review reveals declining interest in general practice as a career choice among medical students and recently qualified doctors in developed countries. This has become particularly evident over the last decade. Several factors are identified as contributing to the decline including lack of respect for general practitioners, the perception that general practice was less intellectually challenging than specialties, poor pay, high workload, uncertainty in health care policy, dislike of management roles and unreasonable patient demands and expectations (Rowsell et al., 1995; Blades et al., 2000; Joyce & McNeil, 2006; Buddersberg-Fischer at al., 2008b; Pugno et al., 2009).

5.1.1 Factors influencing career choice

Indispensability, the ability to help others, respect for medicine as a career and the pursuit of science have been found to be ‘prime motivators’ among young people intending to study medicine (McManus et al. 2006). Personality types, learning styles and A level results have been linked with later success in clinical careers (Ferguson et al., 2002; Lievens et al., 2002).

Having a parent who is a general practitioner or coming from a rural background has been found to increase the likelihood of a preference for a career in general practice being expressed by students at entry to medical school (Pretorius et al., 2008; Soethout

et al., 2008). By contrast other research has shown that having no family members or friends practising medicine and parents with no postgraduate university education predicts later family medicine residency (Scott et al., 2010). These diverse findings may reflect the medical education systems and attitudes to general practice of different countries.

During undergraduate studies medical students encounter both positive and negative attitudes towards general practice. Many medical schools arrange attachments during undergraduate training that provide students with direct exposure to general practice in community settings (Morrison & Murray, 1996). In some cases these attachments result in an enhanced preference for general practice as a final career choice (Soethout et al., 2008). In others there was little evidence that career intent changed although more positive attitudes towards general practice did develop immediately after the attachment (Rabadan & Hidalgo, 2010). Other medical schools have developed programmes that are specifically designed to increase their output of general practitioners by ensuring maximal training by family physicians perceived as competent role models (Rabinwitz, 1999a). Specialty choice among undergraduates can be made by a process of exclusion. In several countries, but particularly in the USA, denigration of general practice as a career choice is still widespread (Schafer et al., 2000; Campos-Outcalt et al., 2003; Lu et al., 2008). This persists despite a number of measures to counter the negative image portrayed by peers, teachers and clinicians alike. To what extent this is part of the normal process by which medical students make their career choice or is attributable to institutional prejudice remains largely unanswered. Awareness that this occurs in modern medical schools is important when considering career decision making among medical students and new graduates.

5.2 Gender and general practice

The percentage of female medical students in medical schools has increased significantly over the last twenty years. Women doctors in the UK, more than men, are likely to relinquish specialist and academic careers in order to bring up a family (Sinclair et al., 2006). They tend to choose general practice in order to combine a career with the needs of their children. This does, of course, depend on the contractual arrangements available for general practitioners with salaried posts offering some

doctors the limited professional time in practice they need to suit their other commitments.

Despite the steady ‘feminization of medicine’ throughout the developed world there is still not enough interest among graduates to meet future requirements for general practitioners (Lawrence et al., 2003; Levinson & Luries, 2004; McKinstry et al., 2006). In Holland the difficulties recruiting graduates to general practice is attributed to the ‘de-masculinisation’ of the general practice workforce as opposed to ‘feminization’ (Maiorova et al., 2005). More recent Dutch work suggests that there may, in fact, not be that much difference between males and females in choice of general practice (Maiorova et al., 2008a). This contrasts with evidence from a very large study of specialty choices among US medical graduates showing that female graduates are more likely to choose family medicine (Jeffe et al., 2010). It is argued that the increase in proportion of women among medical school graduates has played a ‘critical role’ in limiting the overall decline in the numbers planning family medicine careers over the last decade.

5.3 Lifestyle and medical career choice

Lifestyle emerges as an important factor among students and new graduates who choose general practice as a career. Canadian medical students who selected general practice as their preferred career cited lifestyle as one of the most important factors determining that choice (Scott et al., 2007b). Studies looking at doctors who changed career direction shortly after graduating suggest that quality of life and lifestyle play an important role in the rejection of the original career choice and selection of general practice (Edwards et al., 1997; Evans et al., 2000; Lambert et al., 2003a). UK graduates attribute greater importance to flexible working patterns than lifestyle factors in determining the attractiveness of general practice as a career choice. Expansion of the number of fulltime and part-time flexible posts has been identified as a mechanism to improve recruitment and retention of general practitioners (Lloyd & Leese, 2006).

5.4 Timing of career decisions

There are differences in the timing of medical career decisions between countries. Medical students in Canada and the USA make definitive career choices by the time they graduate from medical school. But those from Australia, New Zealand and the UK can delay career decisions until several years after qualification. Uncertainty over specialty choice may persist for several years following graduation. Half the UK doctors asked about career choice three years following graduation did not regard their career choice as definite (Goldacre & Lambert, 2000). The facility to delay choice is to some extent dictated by the postgraduate training systems existing in different countries. The two year postgraduate foundation training programmes in the UK require all medical graduates to apply for higher professional training programmes at the end of their first foundation year. They have to make career decisions earlier than they might have done prior to the introduction of foundation training. The UK is the first country in the world to adopt foundation training but the impact of earlier decision making on career success and satisfaction is still unknown. Establishing the influence of general practice postgraduate attachments on career decision-making is important to both patients and professionals and forms the basis of this thesis.

5.5 Career decision making outside medicine

Several models have been developed to explain career decision making in general among young people. Early theories linked personality types to occupation. The initial assumptions were that traits were relatively straightforward to identify and that they remained stable over time (Holland, 1959). Later thinking focused on categorizing decision making processes into those that are rational in nature, those that depend on the agreement of others and those that are intuitive (Harren, 1979). Several investigators have subsequently built on earlier work to link personality types with particular approaches and personality types (Chartrand et al., 1990; Miller & Miller, 2005).

More recent research has emphasized that career decision making is a more complex process than originally thought. Decisions are often highly individualized and may not follow predictable paths. They can also be intrinsically linked to contextual factors

(Bright et al., 2005). The possibility that chance, or changing events, may play a part in career decisions has been increasingly recognized (Pryor & Bright, 2003).

The review underlines the dynamic, changing and complex nature of career decision among young people. The likelihood that such behaviours exist among medical students and doctors is high. Whilst manpower planners may use modelling based on logical parameters to predict future career choices in medicine they may find unexpected patterns emerging. Understanding thinking around career decision making in the general population may help explain mismatches seen between predicted and eventual career paths in medicine (Irish et al., 2010). This thesis may also provide insights into the complexity of career decision making during foundation training and the role that specific general practice attachments have in influencing doctors' career paths.

Chapter 6: Background to the Study

6.1 The Calman review and the growing problems of senior house officers

Since the early 1980s much attention has been focussed on the challenges facing hospital career structuring within the UK. It was recognised that the restrictive manpower policies advocated in the Willink report (Ministry of Health, 1957) had left the UK very dependent on large numbers of overseas graduates. Competition for consultant positions in major specialties was intense with many experienced specialist trainees failing to advance.

Reform of postgraduate medical training system in the early 1990s was overseen by the then Chief Medical Officer Sir Kenneth Calman. His reforms were concerned mainly with improving training for hospital specialists and resulted in the introduction of the Specialist Registrar grade (Figure 23). This training position was limited to seven years in duration and guided by clear specialty specific curricula with regular assessments of progress. Completion of training resulted in the award of a Certificate of Completion of Specialist Training (CCST). No changes were made to the Pre-Registration House Officer (PRHO) and Senior House Officer (SHO) grade.

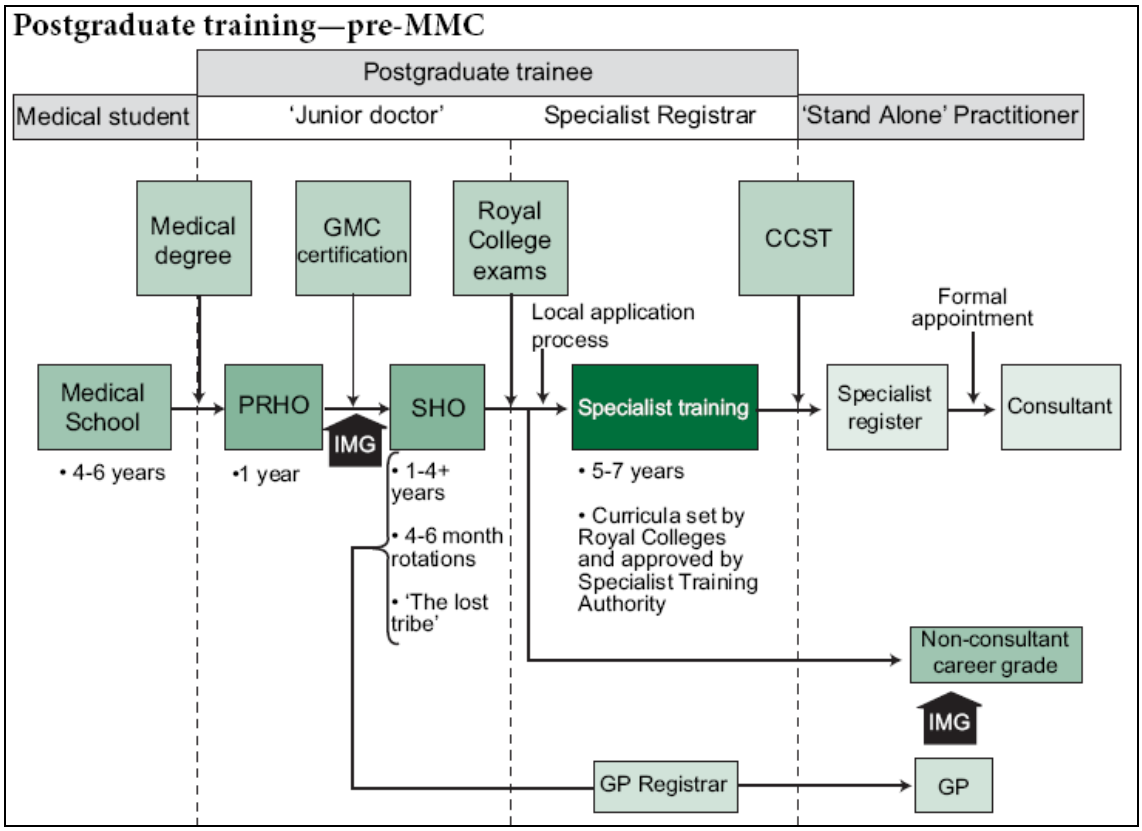


Figure 23 Structure of postgraduate training (Calman review)

Source: Select Committee on Health Third Report: The gathering storm 2003-2007.

At that time there were 9000 SHO posts in England and Wales with less than 4000 doctors qualifying from UK medical schools. This caused a substantial number of doctors to spend up to five years as a senior house officer (SHO) before they could gain promotion. Many of these doctors were overseas graduates.

Coincidentally, the assumption that an increase in medical manpower in the National Health Service would 'bring improvement in the quality of care' was being challenged. Reference was made, in a major Department of Health report, to 'the never-ending way that doctors can find useful means of occupying their time' (Department of Health and Social Security, 1980). Health care planners proposed trimming the middle specialist grade and expanding the number of consultants. They envisaged that patients and consultants would be brought closer together by removing 'a few layers' of junior doctors and that this would also promote a more direct working relationship between consultants and general practitioners. Educators became increasingly aware that 'self-

contained specialties' with their own training programme and specialist registers were of limited effectiveness in managing patients with diverse disease based in the community. A re-focussing of care towards community based provision was seen as essential to meeting the needs of the UK population.

The Short Committee's review of hospital careers in 1981 recommended that hospital specialists should be able to move into general practice training, with some recognition of the time they had spent in their hospital posts (House of Commons, 1981**).** They felt that the number of SHO posts should not be allowed to rise. The aspiration was that cross recognition of training in general practice and major specialties would result in a 'pool of available posts for graduates at the end of their pre-registration year, in the hospital specialties, community medicine and general practice, after which career paths would begin to form themselves more or less clearly'. Those entering vocational training for general practice (a three year programme), after an initial year training as a specialist, would then only have two years to complete. This implied that nearly all hospital SHO appointments would be recognised for general practice training purposes and that posts would be available for doctors in hospital medicine to create their own vocational training programmes alongside those who had entered the full three year programme at the earliest opportunity.

By the 1990s, however, the numbers of doctors in SHO posts exceeded numbers in any other training grade. In an editorial in the British Medical Journal the plight of the lost tribe of doctors – senior house officers- was highlighted (Dillner, 1993);

> There are more senior house officers than doctors in any other training grade in Britain but nobody knows what they do in hospitals or has a clear idea what skills they should be learning. Nobody is responsible for them and they suffer from having poor career structure and inadequate training. Now that there are government initiatives to reduce the hours that junior doctors work and limit the time it takes to train to become a specialist, the problems that senior house officers face can no longer be ignored.

As a 'migrant' workforce, senior house officers had little influence on their working environments. They were usually in post for only six months and rarely had their views taken into account. They often had poor working conditions with long shifts and inadequate rest periods. Many were poorly supervised and received very little useful

feedback on their performance. Some described it as ‘impossible’ to pass postgraduate examinations whilst working full-time. A survey of 303 senior house officers in 16 hospitals in the North East Thames region showed that over half thought their workload was heavy or excessive and a quarter responded that their supervision had been less than adequate. Although senior house officers delivered most of the direct care to patients admitted to UK hospitals and hospitals ‘could not survive without them’, their support from the NHS was frequently poor. Whilst career supervision was provided for other groups of doctors, no individual or institution had direct responsibility for the education of senior house officers or the monitoring of their working conditions. The General Medical Council oversaw undergraduate medical training and the Royal Colleges were responsible for postgraduate training in general practice and/or specialties; but the ‘lost tribe’ slipped through this protective net.

Those intending to pursue a career in general practice had additional problems in finding appropriate training and career progression; because many of them were treated as inferior. Senior house officers associated with vocational training for general practice often had their study leave curtailed and were demoted to ‘holding a retractor’ whilst consultants concentrated on teaching those senior house officers whom they regarded as career specialists. Even though the Deaneries made it a mandatory requirement for these senior house officers to attend weekly half day vocational training programmes, only about a third of them managed to make 75% of their meetings. There was little career advice either in medical school or after qualification, and the senior house officers themselves were split in their approach. Half wanting ‘a broad, general education that would provide useful experience for any specialty’ and the others waned ‘to specialise as soon as possible and link posts to the single higher training grade’. A postgraduate adviser in general practice wondered whether the posts were for doctors to ‘develop generic skills’, to gain ‘communication, auditing skills, and general clinical skills’ or ‘to run the hospital at night’.

6.2 Modernising Medical Careers (MMC)

Finally, a major review of postgraduate medical training was undertaken by the Chief Medical Officer in England, Sir Liam Donaldson (Department of Health, 2002). The report acknowledged that there had been ‘significant reforms of pre-registration and

higher specialist training and improvements to vocational training for general practice' in marked contrast to 'long-standing problems with the job structure, working conditions and training opportunities of senior house officers'. The importance of the senior house officer grade was further underlined by the fact that by then half of all doctors in training were senior house officers. One third of the group were non-UK graduates and over a half of the UK graduates in the grade were women. It was recognised that reform had to take account of poor job structures (half of all senior house officer posts were short term and had no attached training programme), non-standardised selection procedures, high workload, poor supervision, inflexible training programmes and 'variable' relationships between the programmes themselves and Royal College examinations. The reforms set out to establish a clear set of guiding principles, propose specific programme curricula, develop quality assured mechanisms for training, deliver consistent and valid assessments and improve selection systems. It was recommended that training should be a broadly based programme, individually tailored to the needs of the learner, 'time-capped' and capable of helping doctors to move in and out of training as well as between training programmes.

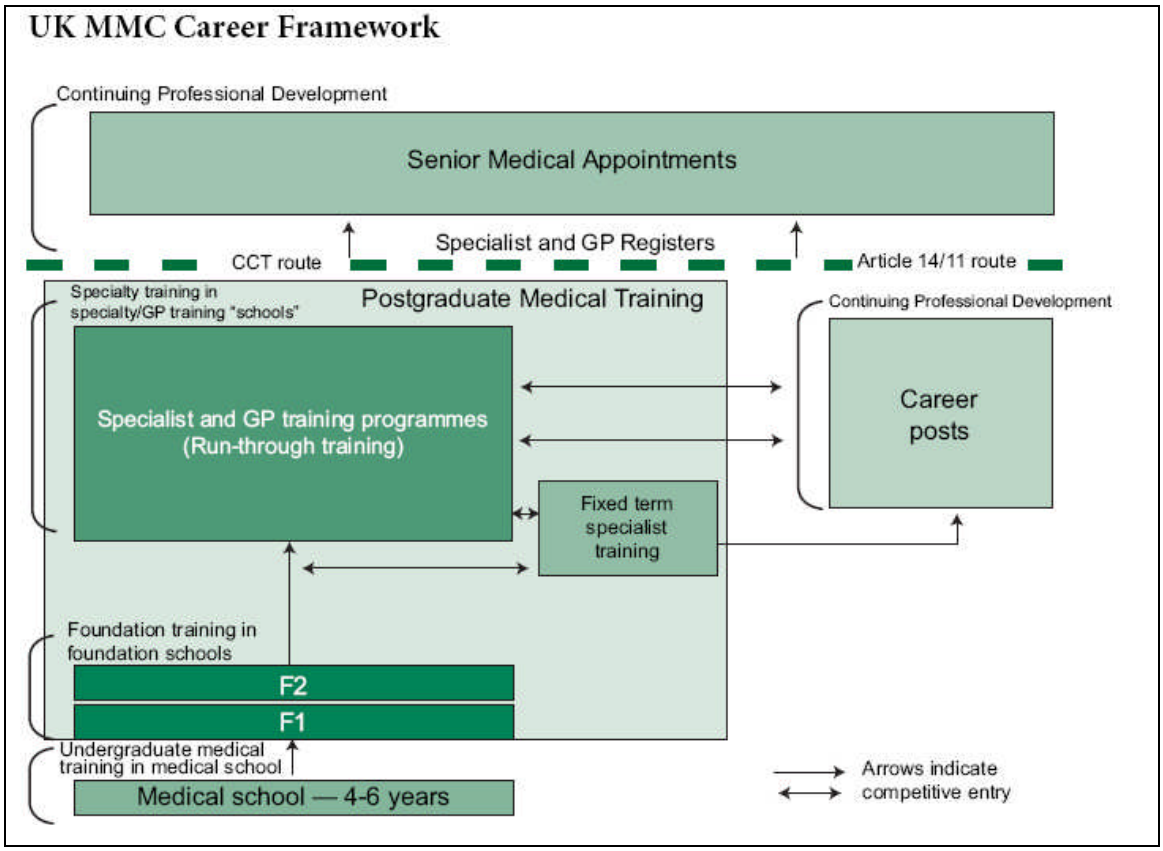


Figure 24 Structure of postgraduate medical training (Modernising Medical Careers)

Source: Select Committee on Health Third Report: The gathering storm 2003-2007.

The new structure, summarised in Figure 24 above, proposed a radical reform of the senior house officer grade. Following graduation it was recommended that all doctors:

- Initially undertake a two years *foundation programme* which includes the current pre-registration year. Its objective was to develop and enhance core or generic clinical skills essential for all doctors (e.g. team-working, communication, ability to produce high standards of clinical governance and patient safety, expertise in accessing, appraising and using evidence as well as time management skills).

- Subsequently undertake one of eight (or so) broad-based, time-capped *basic specialist training programmes* including training for general practice. During the foundation years, the doctor would have had the chance to sample a range of practice and would then compete to enter one of the basic specialist training

programmes. A limited number of *individual programmes* would be provided to meet the specific training needs of individual doctors.

In focussing on assessment the Chief Medical Officer highlighted wide variations in examination pass rates between Royal Colleges and differing performances of UK and non-UK graduates. He recommended that a system of accreditation of medical Royal College examinations be introduced in order that assessments could be confirmed 'fit' for the purpose for which they were designed. Responsibility for overseeing examinations and curricula would fall to the Postgraduate Medical and Education Training Board (PMETB), so replacing the Royal Colleges' monopoly of the assessment of post-graduate trainees. Postgraduate Deans were to be responsible for programme-based training, training of educators and appointment procedures for foundation, basic and higher training.

The other important change proposed by Sir Liam Donaldson was that doctors in higher specialist training should be awarded a Certificate of Completion of Specialist Training (CCST) earlier than was standard practice at that time. This would enable those completing basic training to be appointed to a 'generalist' consultant post in their preferred specialty. Those who then wished to progress further within their chosen field could undertake a period of more highly specialised training. Funding for this additional training, however, would depend on whether there was a service need for such hyper-specialisation.

Reactions to Modernising Medical Careers were mixed. While there was broad support for the underlying principles identified in the review, there was considerable anxiety that the scope of reforms proposed at all levels of postgraduate medical training bore 'little resemblance to the proposals that were approved during consultations' (Madden & Madden, 2007). There was even reference to secret agendas and underhand attempts to introduce important reforms to medical education without proper consultation.

The Chief Medical Officer did include the possibility of moving to a single training grade that included foundation, basic specialist, general practice, higher specialist and individual training programmes at some unspecified time in the future. It was envisaged that doctors selected for these training programme, or 'run-through' grades, would do so

on the assumption that they would automatically progress (subject to satisfying competency requirements) without needing to reapply for individual posts en route. This meant that trainees with 'run-through' training would have both geographic stability (guarantee of several years in one location) and a clear career path. This matches the specialty training programmes taking a trainee from registration through to specialist registration, that are already established in the USA, Canada and several European countries.

He suggested that urgent work be 'undertaken to explore, specialty by specialty, the appropriateness of creating a 'run-through' training grade in which doctors would move seamlessly through training with satisfactory progress checks'.

Professional leaders found the recommendations of the health ministers, following the consultation exercise, particularly challenging as the emphasis moved towards immediate adoption of 'run-through' training (Department of Health, 2003a). The ministers commented that they would

> support and encourage the Postgraduate Medical Education and Training Board working with the Royal Colleges to develop competency-based training and assessment and to review the length of training programmes. This will be done on a specialty by specialty basis and include training for general practice. It will aim to provide seamless specialist training programmes leading to a CCT (certificate of completion of training). The time in these specialist programmes should count towards acquisition of a CCT.

Later documentation cited the ministers' statement as justification for moving from basic and higher specialist training to seamless, run-through training (Department of Health, 2004a). It was argued that 'thinking had moved beyond the Basic Specialist Programmes' proposed in Unfinished Business and that a single, run-through approach 'was not only desirable but also achievable'. Some regarded this acceleration to run-through training as producing a product that was 'a far cry' from that originally envisaged in early reform talks. Many argued that the founding principles behind Modernising Medical Careers (specific programme curricula, quality assured training, consistent and valid assessments and improved selection systems) had been compromised in the modifications to Donaldson's original plans. In particular there were concerns that selection solely at entry to training programmes would make it

difficult to remove unsatisfactory trainees. It was argued that selection between core training, consisting of 2-3 years in a range of specialties, and higher specialty training in a single specialty, would engender excellence through competition. There were suggestions that training should be 'uncoupled' and that selection should take place in both core and higher specialist training programmes.

Concerns were also expressed that doctors would have to make career choices earlier than planned and that their early training would not be as broad based as anticipated. The prospect of individually tailored and flexible programmes had little mention in later publications. In terms of workforce planning, earlier agreed pathways would have predictably generated consultants in a shorter time span than previously. However, adoption of run-through programmes resulted in training periods being lengthened to between five to seven years. In reducing the number of senior house officer posts, flexible in terms of service delivery, many doctors might be forced into specialties not of their own choosing. In countering this criticism the government emphasised their commitment to 'fully trained doctors' delivering more specialist care. Shorter training time overall with less time spent in senior registrar grades meant that doctors would spend more time as consultants.

The introduction of the European Working Time Directive (EWTD) had significant impact on educational planning for doctors in training. In working shorter hours and moving to shift patterns, as specified by legislation, the educational model shifted from one based on apprenticeship to one reliant on acquisition of competences through more prescribed teaching. A qualitative analysis of the impact of this changing emphasis suggested that 'limited exposure of trainees, lack of continuity, and limited Consultant Trainer-Trainee contact at the workplace' had resulted in the loss of the apprenticeship model of training (Tsouroufli & Payne, 2008). This concerned both trainers and trainees and was regarded as threatening to professionalism.

In moving to a two year foundation programme it was hoped that trainees would be equipped with pre-determined skills and competences. The first year of the foundation programme (FY1) was regulated by the GMC and ensured that immediately qualified doctors met standards required at that stage of training i.e. equivalent to the pre-registration house officer (PRHO) year. The second year (FY2) was intended to ensure

that trainees had a range of generic skills including those focussed on decision making, practical procedures and communication. Evaluation of pilot schemes took place mainly in London; and the results of this pilot evaluation were not published until after the foundation programmes had gone live (Dewhurst et al., 2006).

The first tranche of graduates entered the new foundation programmes in 2005. Following publication of curricula and operational guides 23 foundation schools were set up in England. They were tasked with delivering foundation programmes and coordinating the efforts of postgraduate Deaneries, Trusts and medical schools. The Postgraduate Medical Education and Training Board (PMETB) was established in September 2005. It oversaw the development of curricula for run-through training in 59 specialties. In 2007 the Department of Health published operational guidance, the ‘Gold Guide’, for implementation of the new postgraduate medical training structure. The first two years of run-through training replaced former senior house officer senior house officer grades and were named ST 1 and ST2 for hospital trainees and GPR1 and GPR2 for general practitioners. Training was completed at ST6 or ST7 for those in specialties and GPR3 for those in general practice. ST3 to ST7 replaced the Specialty Registrar grades (Figure 25).

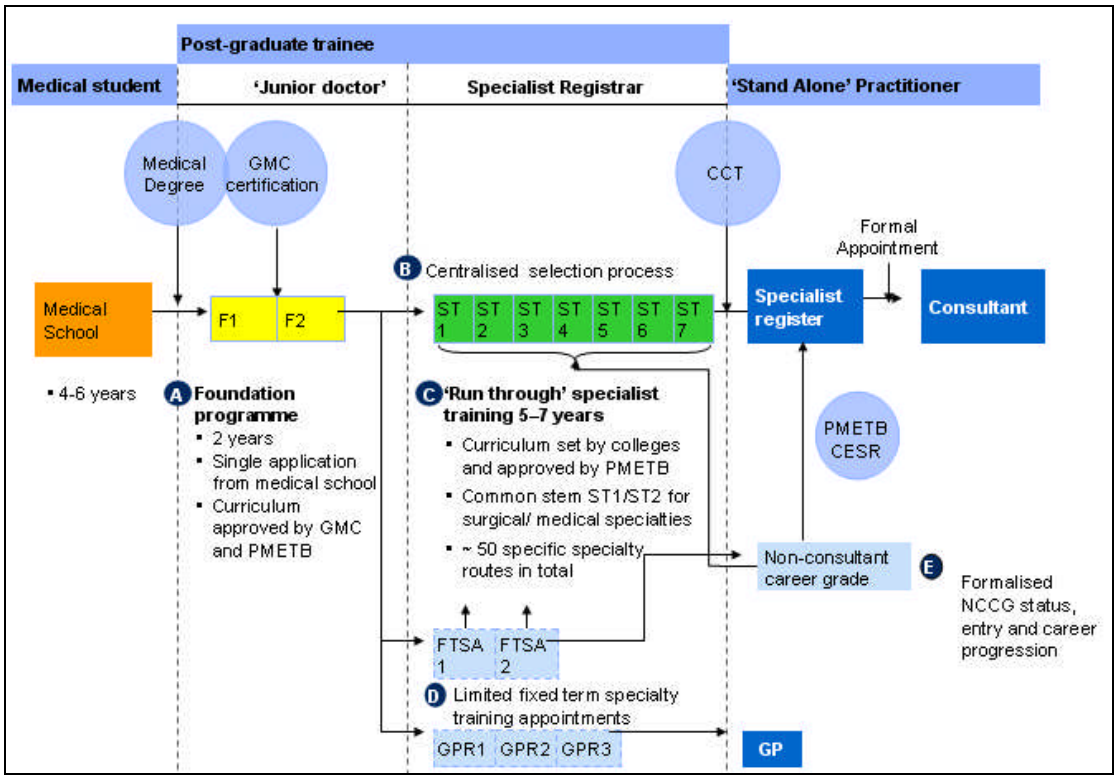


Figure 25 Structure of postgraduate medical training (steady state)

Source: Select Committee on Health Third Report: The gathering storm 2003-2007.

During the transition phase some Fixed-Term Specialist Training Appointments (FTSTA) were created for a couple of years to enable doctors to transfer to the new system. This temporary arrangement was entirely restricted to junior doctors in specialist fields and allowed doctors time to move into formal programmes aimed at training future consultants.

6.3 Foundation training

The foundation programme was designed to provide doctors with a broad range of clinical experiences early in their postgraduate training that would ultimately assist them in their medical career choice. Foundation year 1 replaced the pre-registration year of the earlier system and foundation year 2 the first year of senior house officer training. The intention of foundation was to 'bridge between medical school and specialist/general practice training' (The foundation programme

http://www.foundationprogramme.nhs.uk/pages/home/about-the-foundation-programme).

During year 1 doctors further develop knowledge, skills and competences learned as undergraduates. They are required by the GMC to demonstrate acquisition of specific competences in order to gain full registration. Learning objectives for the year are defined by the General Medical Council (www.gmc-uk.org).

F2 posts are competency based and complement the first year of training. The intention is to train doctors to manage acutely ill patients safely. Training also fosters attributes seen as important in all areas of medicine – good communication skills, effective time management, team-working abilities and appropriate IT skills.

Foundation training posts are typically made up of six, four months placements over a two year period – although rotations between placements can occur every 3, 4 or 6 months depending on how foundation schools have set up their training programmes (see Chapter 1, page 5).

The primary focus of the foundation Stage is to provide a safe environment in which doctors, newly out of undergraduate training, can exercise their knowledge and skills in preparation for entry to general practice or specialty training. Foundation trainees are expected to become competent in core skills and develop their abilities to communicate with patients, work effectively with colleagues, analyse data and interpret the literature. Foundation also provides doctors the opportunity to experience certain specialties at an earlier stage in their careers than had been previously possible. These specialties include audiological medicine, chemical pathology, metabolic medicine, clinical genetics, genitourinary medicine, critical care medicine, microbiology, psychiatry, public health medicine, virology, immunology, histopathology and radiology.

During foundation training the emphasis, in pedagogic terms, is on the trainee's role in building up a portfolio of evidence, including assessments by colleagues, patients and trainers, within individual working environments. Portfolios need to record the acquisition of competences required at the end of foundation year 1. Foundation doctors are encouraged to be responsible for their own learning, ensure that assessments are

completed, take every opportunity to broaden their experience and learn from as wide a range of people as possible. Throughout their programmes foundation doctors have named educational supervisors – usually senior doctors – who are responsible for supporting, and monitoring, young doctors during this training period.

All placements in F1 include medicine, surgery and one other training attachment from one of the 65 recognized specialties. The three elements together constitute foundation year 1. A number of tools have been developed that assist in assessing doctors' ability and progress during foundation training. These include;

Case-Based Discussion (CbD)

Foundation doctors are asked to present cases based on their clinical experience to a senior clinician. The objective is to explore decision making processes and clinical reasoning in a non-judgmental environment. They are expected to undertake these assessments on a regular basis throughout their first foundation year and to produce a portfolio of evidence confirming acquisition of specified competencies.

Mini Clinical Evaluation Exercise (Mini CEX)

These are directly observed clinical encounters in which experienced clinicians observe real consultations between patients and trainees, rate trainee competence and provide immediate feedback.

Directly Observed Procedures (DOPS)

These are directly observed practical procedures in which experienced doctors rate trainees' competence and provide feedback. Observers include clinicians and nurses working either in hospitals or in general practice.

Multi-Source Feedback (MSF)

A number of tools exist that provide a record of trainee's abilities from their colleagues' point of view. Doctors are asked to identify colleagues with whom they work as potential sources of feedback, and these are expected to include non-clinical team members. An administrator then asks these people to rate their views of the doctor concerned and sends the results on to the relevant educational supervisor.

During the second foundation year doctors are asked to ‘reflect on the impact’ on patients of the hospital environment, the general practice environment and the interface of the two’. Clinical attachments in general practice aim to provide doctors in training with experience of people in the earlier stages of their illnesses. They gain a deeper understanding of the role of consultation in the context of primary care; and they learn more about the impact of poor health on individuals, their families and the community. Typical working weeks have six half days seeing patients and working within the primary health care team, while the remaining four sessions are spent on assessments, projects and attending foundation school teaching sessions.

As in the first foundation year, doctors are expected to gather a portfolio of evidence demonstrating their progression in terms of the competencies gained. These are pre-specified and contained in a learning portfolio given to each doctor during their foundation year 1 induction. Besides inclusion of assessments, using the tools deployed during foundation year 1, doctors in training need to submit personal development plans, evidence of reflection on their practice as well as the outcome of meetings with their educational supervisor. Based on this evidence the Postgraduate Deans can decide whether or not to sign doctors up as having satisfactorily completed foundation training. The Dean may then issue a Foundation Achievement of Competency Document (FACD).

A working group set up jointly by the Joint Committee on Postgraduate Training for General Practice (JCPTGP) and the Royal College of General Practitioners (RCGP) set out to ensure that general practice contributed ‘fully’ to the development of foundation programmes. Besides developing learning outcomes that were relevant to the general practice component of the programmes the group also aimed to ‘utilise the skills and experience of GP education to provide a coherent education programme across the different specialties participating with clinical placements’. Responses to the consultation on *Unfinished Business* showed that there was ‘enthusiastic support for experience of general practice for all trainees in the second year of the foundation Programme’ (Department of Health, 2003a). It was recognised that existing three year training programmes for general practice were too short for trainees to acquire prescribed competencies for general practice. Some innovative programmes that

provided additional experience through short extensions beyond the three years demonstrated enhanced readiness for independent practice.

The group supported the MMC recommendation that any general practice educational programmes during foundation year 2 should be underpinned by specific skills and competences including enhanced clinical skills, effective relationships with patients, ability to use data and evidence, good team working, time management and decision making, high standards of clinical governance and safety and understanding of the differing contexts of medicine (Department of Health, 2003b).

In respect of general practice it was felt that doctors entering foundation training would come from three groups; those planning a career in general practice and using the experience in foundation as an introduction to vocational training, those planning a specialist career whose only career exposure to primary care might be during the Foundation programme and those who were yet to make a career choice. The working group envisaged that the foundation year 2 general practice placement should provide (1) a 'meaningful experience' of general practice to doctors with a variety of career intents; (2) the opportunity to care for patients in the context of primary care; and (3) an understanding of early presentation of illnesses and the impact of ill health on individual patients and their families. The authors drew on the characteristics of the specialty of general practice defined by WONCA Europe (World Organization of National Colleges, Academies and Academic Associations of General Practitioners/Family Physicians) and identified three main areas (patients, their illnesses and the processes to manage their illnesses) that should govern general practice attachments during foundation year 2 (Table 17) (WONCA, 2002). These three areas have been included in the operational framework developed to support the implementation and delivery of foundation training across the UK (Department of Health, 2005).

Table 17 Characteristics of the specialty of general practice

Patients	**Illnesses**	**Processes**
During the placement the doctor will; 1) Gain an understanding of the person-centred approach, oriented to the individual 2) Work with patients in their own contexts and community 3) Gain an understanding of the impact of the patient as a person in a family 4) Gain an understanding of the physical, psychological, social and cultural dimensions of the problems presented 5) Gain an understanding of the difference between disease and illness'	During the placement the doctor will; 1) See illnesses at an earlier and undifferentiated stage 2) Understand the different epidemiology and the prevalence and incidence of illness in the community 3) Manage simultaneously episodes of new acute illness with concurrent chronic problems in the patients they see 4) Manage the interface with secondary care through referral, acute admission and discharge from hospital'	During the placement the doctor will; 1) Gain an understanding of the advantages of medical generalism in the community setting 2) Work in, and understand the roles of, primary care teams in providing care to individual patients 3) Gain an understanding of the importance of effective communication between patient and doctor, and the relationship built over time 4) Gain an understanding of effective communication between health care professionals and the carers of patients 5) Gain an understanding of the role of primary care in promoting health in the community 6) Learn about decision making and risk management in the absence of support services (pathology, imaging, senior colleagues) 7) Understand the impact of working at the point of first contact to the health service with open access to patients 8) Gain an understanding of the impact and analysis of evidence based medicine and its application in the primary care setting 9) Understand the importance of continually developing personal knowledge

Source: Operational framework for foundation training Appendix 6 p75.

Chapter 7: Methodology

7.1 Aim of the Study

In addition to broadening early clinical and educational experience of doctors in training there has been much interest on the impact of career choice on specific postgraduate attachments during foundation training. Several specialties with early recruitment difficulties have devised programmes intended to attract newly qualified doctors during this time. If the future intention is to have a half of all graduates working in general practice, the influence on career choice of four month attachments in general practice during foundation training is of immediate relevance to health service planners, funders, professionals and patients. Little has yet been published on the influence on career intent of the attachments during foundation year 2 among UK doctors.

This study aimed to investigate the influence on career intent among doctors of a four month attachment during the second foundation year. Evidence was also gathered on the impact of the attachment on doctors' broader understanding of general practice and how that related to pre-existing beliefs and attitudes.

7.2 Overview

The research was carried out between August 2005 and August 2008. The study consisted of two main elements;

- administration of a standardised career questionnaire, sci 59[2], before and after the four month attachment in general practice and annually thereafter for two years
- face to face or telephone interviews with questionnaire respondents using semi-structured formats

[2] The questionnaire was labelled sci 45. The sci 59 questionnaire was identical, but used an improved mode of analysis, which was adopted when it later became available (see section 7.3).

Subjects were recruited for the study from within the Kent, Surrey and Sussex Deanery. KSS is one of nineteen geographically based deaneries in the UK. The 20th is the Defence Postgraduate Medical Deanery. All doctors within KSS Deanery who had enrolled as foundation year 2 trainees in August 2005 or August 2006, and who were undertaking a four month attachment in general practice during their F2 year, were invited to participate in the study.

A second foundation year was divided into three four month attachments. All doctors, whatever their career aspirations, took part in such programmes. Initial intentions were that 55% of all doctors enrolling in August 2005 and 80% of those starting foundation year 2 in August 2006 would undertake a general practice attachment.

Questionnaires were sent to participants as soon as they started on their general practice attachments and then again within their last two weeks (Table 18). Two reminders were sent to non-responders. Members of each cohort were sent a further questionnaire a year following their attachments. Data collection was completed in September 2008.

Table 18 Study cohorts

	2005/2006	2006/2007	2007/2008
Cohort 2 (qualified 2004)	Foundation year 2	Basic training year 1	Basic training year 2
Cohort 1 (qualified 2005)	Foundation year 1	Foundation year 2	Basic training year 1

Questionnaire respondents were invited to take part in either a face to face interview or a telephone interview. All those who agreed were interviewed. The interviews were transcribed and a thematic analysis of the output was performed with the use of NVivo 7. Piloting of the interviews with four volunteers took place between April and August 2005. The full study plan is presented in Figure 26 below.

August 2004 – August 2005

Developmental Phase

Liaise with Deanery, supervisor and external expert resources

↓

Finalise Research Proposal

↓

Seek DPhil approval

↓

Secure preliminary funding

↓

Complete initial literature review

↓

Seek ethical approval

↓

Identify questionnaire

↓

Finalize analytical methodology

↓

Pilot questionnaire

↓

Identify first cohort

August 2005 – August 2008

Implementation Phase

Annual Commitments

Further questionnaires

↓

Follow up interviews

August 2008 – August 2009

Summary Phase

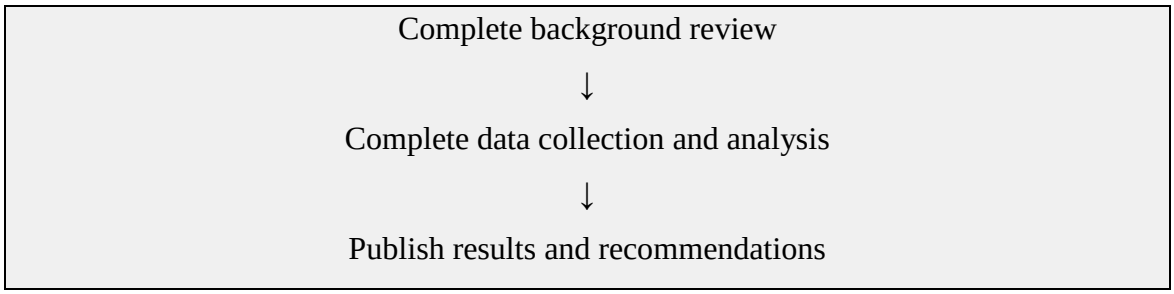


Figure 26: Study timeline

7.3 Choice of the sci 59 questionnaire

7.3.1 Choice of sci 59

A preliminary literature review was conducted in order to identify a suitable career questionnaire for use in the study. Mechanisms of delivery and data collection, as well as evidence of pre-testing and piloting, were considered particularly important because of the short window of sampling opportunity i.e. the beginning and end of a four month attachment in general practice (Halpern et al, 2002; Brogger et al, 2003).

Sci 45 was identified as a suitable career questionnaire for use in this study (Gale & Grant, 2002). Developed by researchers at the Open University Centre for Education in Medicine the programme analysed responses to a 130 item questionnaire and matched doctors' skills and attributes to the requirements of different specialties. Originally covering 45 specialties the inventory was expanded to 59 during the period of the study and renamed sci 59. The output was in the form of a list of career rankings (from 1st to 59th). The intention of the developers was that students and doctors should use the information from successive iterations of sci 59, in addition to advice from colleagues, family, friends, mentors, supervisors and educationalists, to guide their career selection.

7.3.2 Development and history of sci 59

Sci 59 became available as a web based instrument during the period of the study. Previously, analysis of responses to questionnaire items had only been possible, on an

individual basis, using CD based software. Distributing CDs to all potential participants was not deemed feasible or affordable and it was not possible to store, and retrieve, the analysed output electronically. Study participants were therefore asked to complete paper based questionnaires only. Responses to the questionnaires were subsequently entered on-line and analysed using the web based programme.

The inventory was developed by Gale & Grant (2002) through a clear iterative process. After preliminary discussions with 10 doctors, they conducted 65 semi-structured interviews with consultants and GP principals in 6 regions. The process covered 35 specialities and a range of hospital, community and primary care settings. The main purpose of this exercise was to reveal

- A list of factors used to describe a senior doctor's role in a given speciality
- Personal attributes in trainees most likely to progress in a given specialty

This enabled them to identify 70 specialist characteristic items and 70 career success factors. A postal survey of individuals in 44 specialties was then conducted. The specialists were asked (1) to rate each item as being vital, important or unimportant and (2) to add any missing items. The survey was designed to ensure at least five replies from each specialty and included postgraduate deans and clinical tutors in postgraduate centre as well as a purposive sample of doctors selected randomly from the medical register. 350 replies were received with a minimum of five replies for each of the 45 specialties considered. Both lists increased from 70 to 80 items. In order to identify discriminatory factors the two lists were combined and overlapping items removed. Factor analysis of the combined lists revealed factors such as 'working with children', which discriminated strongly against care of the elderly but strongly in favour of adolescent psychiatry and paediatrics, and non-discriminating factors such as 'personal presentation' and 'work orientation' which were common to all specialties . The exclusion of common factors shrunk the list to 80 items, equally divided between role and personality characteristics.

This final list was then used to create a draft inventory in the form of statements. Original interview records were used to construct statements that were 'meaningful to the intended audiences'. A minimum of one positive and one negative statement was

collected for each item. This generated nearly 300 statements. These were then shown to 20 consultants who checked for expression or understanding and reduced the number to 250.

The 250 statements were then sent to 450 senior house officers who were asked to express agreement or disagreement using four point scale (strongly disagree, disagree, agree or strongly agree) and to record their active career intent. This resulted in the refinement of the list (items with similar mean scores for every speciality were taken out) leaving 130 items in total. Discriminatory function analysis revealed 12 subscales. It was feasible, then, to compute a mean score for each statement and subscale and produce a profile based on similar mean scores rather than content.

An example of the 12 sub-scale output is shown in Figure 27:

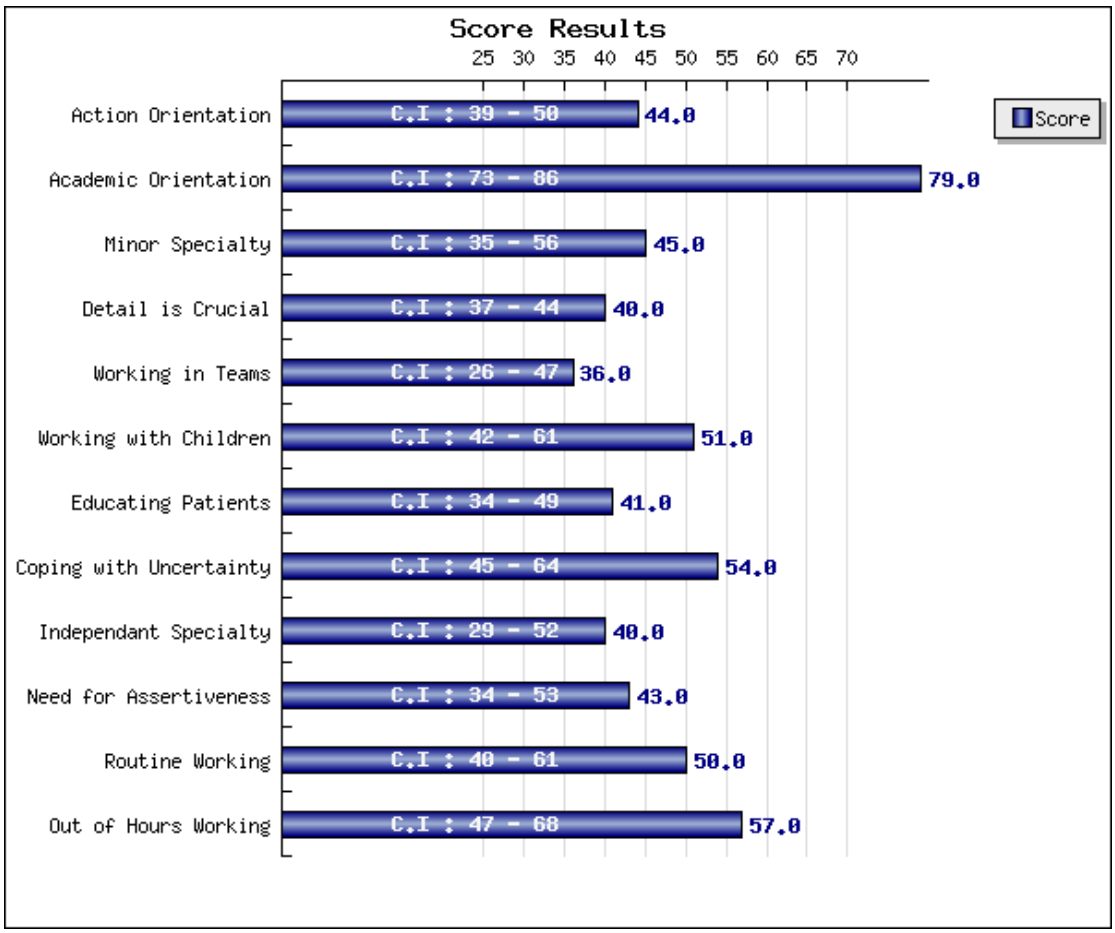


Figure 27 Example of a 12 sub-scale output in sci 59

Recommendations of career fit, ranging from ‘best’ (1) to ‘least’ (59) were then generated for each doctor i.e. the extent to which an individual doctor’s personal skills and attributes match the requirements of a particular specialty. The example below shows the 20 ‘best’ and ‘least’ career fits derived from the complete list of 59 ranked specialties generated on-line for each completed sci 59 questionnaire (Figure 28).


1. Tropical Medicine
2. Haematology
3. Dermatology
4. Renal Medicine
5. Pharmaceutical Medicine
6. Clinical Pharmacology & Therapeutics
7. Rheumatology
8. Medical Oncology
9. Gastroenterology
10. General Medicine
11. Medical Ophthalmology
12. Endocrinology & Diabetes
13. General Paediatrics
14. Infectious Diseases
15. Allergy
16. Clinical Genetics
17. Nuclear Medicine
18. Genito-urinary Medicine
19. Neurology
20. Public Health Medicine

40. Community Paediatrics
41. General Psychiatry
42. Oral & Maxillo-facial surgery
43. Clinical Radiology
44. Obstetrics & Gynaecology
45. Old age Psychiatry
46. Emergency Medicine
47. Child & Adolescent Psychiatry
48. Psychiatry of learning disability
49. Urology
50. Ophthalmology
51. Cardiothoracic Surgery
52. Otolaryngology
53. Occupational Medicine
54. Plastic Surgery
55. Paediatric Surgery
56. Forensic Psychiatry
57. General Surgery
58. Neurosurgery
59. Trauma & Orthopaedic Surgery

Figure 28 Example of a sci 59 recommendation showing 20 ‘best’ and ‘least’ career fits derived from a full list of 59 specialties(1=’best’ fit,59=’least’ fit)

7.3.3 Practical issues around sci 59 during the study

Using the sci 59 questionnaire in this study provided some practical challenges

1. It was a lengthy questionnaire to complete (130 items) at the beginning and end of their GP attachment.
2. Distribution to a highly mobile population of doctors spending only four months in one post was problematic. It was difficult to identify doctors’ correct addresses in the early phases of the study. The demographic information on

doctors held by Deaneries was often based on their domicile arrangements at the time of recruitment to the programme, i.e. six months prior to starting in their second foundation year. Moreover, the current Deanery mechanisms for tracking foundation doctors as they went into attached practices had not been fully developed during the period of the study.

3. Return rates were significantly affected by leave and state holidays. The peripatetic nature of doctors at that particular stage of their professional life sometimes made follow up very difficult. For example, many foundation year 2 doctors took longer breaks than expected around Christmas and the New Year, thus creating a concertina effect on the questionnaire sampling.
4. Other complications arose with participants ceasing their programmes, taking extended sick leave or being absent on maternity leave.
5. The second cohort was involved in the Medical Training Application Service (MTAS) debacle during 2007, in which many doctors involved in the study experienced considerable career uncertainty.
6. Rates of completion of both questionnaires ranged from 39% to 68%, according to the cohort.

7.3.4 Issues around the development of sci 59

A number of difficult compromises had to be made during the construction of sci 59:

- A three point scale was employed in identifying possible items, probably because a very large number of items were being considered by the respondents. However, this restricted scale meant a lack of variance, and a consequent instability of correlation between items. Factor analysis depends upon such variance for stability in its output; and enrolling large numbers of participants in the study is unlikely to have fully compensated for this.
- Despite the later use of item discrimination tests, there is still some question about the reliability of the instrument (Steadman, 2009).
- The instrument was designed primarily as a guide to career matching. There were no data confirming its ability to predict career choice over the medium to long term. Part of the work within this research may help to improve understanding of the long term predictive validity of sci 59.

7.4 Approaching participants

In addition to completing the questionnaires, study participants were asked to provide date of birth, nationality, medical school or university, qualification and year of qualification, marital status (including number of children) and contact details. They were also asked if they were willing to be contacted for a follow up interview, whether they would prefer to receive their questionnaires by post or email, and whether they wished to receive updates on the study.

An initial letter inviting Kent, Surrey and Sussex foundation year 2 doctors to participate in the study was sent to all August 2005 and August 2006 cohorts as they started their general practice attachments during foundation year 2. Participation information sheets, consent forms, questionnaire and addressed envelopes with first class stamps were included with the invitation letter. The Central Office for Research Ethics Committees (COREC) supplied specific guidance on essential requirements for researchers submitting clinical and non-clinical studies for ethical approval within the UK. Besides providing detailed advice concerning consent, the organisation produced templates for use in interviews and questionnaire surveys. A central stipulation of the ethical approval process was that a Participation Information Sheet should be provided. This sheet should explain clearly to potential participants the purpose of the study, the reasons why they have been selected to participate, the voluntary nature of their participation, the risks and benefits of taking part, issues of confidentiality as well as mechanisms for expressing concern about the conduct of the study.

Participant information sheets were prepared for both the questionnaire and interview phases of the study. In particular, the sheets contained information about sources of help should any doctor experience considerable career regret as a result of participating in either element of the research. The unified national ethics submission system in place at the time was primarily designed for large scale intervention studies involving drugs or surgical procedures. It had been minimally adapted and applied to a wide variety of research, including qualitative studies. While the risks to an individual responding to a questionnaire or taking part in an interview were less obvious than in conventional interventional research, the COREC guidance provided a useful framework for developing good quality processes throughout the study.

A package of documents (Appendix A) was sent to all potential study participants. The package consisted of four components:

- Letter of Invitation
- Participation Information Sheet for the Questionnaire
- Two Consent Forms for the Questionnaire
- Questionnaire

Results were recorded on an Excel spreadsheet. Individual acknowledgement was sent to each participant on receipt of a completed questionnaire. A list of ranked career preferences was then generated for each participant by analysing item responses (as previously described) using the software supplied by the Open University. These were then compared on a before and after basis. In addition software output included visual analogue scores on the 12 subscales. Non-responders were followed up after ten days with a tailored reminder letter, which also contained a questionnaire, a participant information sheet, a participant consent form and a stamped addressed envelope. No further reminders were sent. It was considered possible that career preferences might already be affected after the first month of general practice attachment and that this could lessen the likelihood of change being recorded in the before-after analysis.

7.5 Interviews

Participants returning completed questionnaires were asked whether they wished to take part in a face to face interview or a telephone interview. All those who agreed were interviewed. Interviewees were sent a career map and brief questionnaire to complete prior to the interview, in addition to a participant's information sheet. The full package sent to prospective respondents can be found in Appendix B. It contains:

- A career map intended to help interviewees structure their thinking about career preferences and plans before they were interviewed.
- A semi-structured questionnaire on factors affecting career choice (first based on the literature review, then modified by the researcher and his supervisor

following the first four pilot interviews). This was completed before arrival, but could also be further discussed in the interview.

- A Participation Information sheet answering possible questions about the Interview.
- Two Consent Forms for being interviewed.

The Interview Questions themselves were first chosen in July 2005 (Appendix B). The concept of an academic continuum was employed as a framework for developing questions to be used in semi-structured interviews. The literature on career decision-making reveals that context and chronology play important roles in determining individual career paths. Family background, school, university or medical school and postgraduate experience influence paths in medicine. An individual may make a decision to study medicine any time from early childhood. These early aspirations can also include specific careers within medicine.

The questions themselves were devised by NM and ME. They were then piloted on four participants. The intention of the chronological approach was to enable participants (who would have prior sight of the questions) to explore their career thinking at specific stages of their lives. It was evident from the literature, for instance, that expressing an interest in general practice as a career at entry to medical school increased the likelihood of a doctor becoming a general practitioner (Senf et al., 1997). Equally some work showed that those from medical families were more likely to pursue specialist careers (Pretorius et al., 2008; Soethout et al., 2008). It was felt that information from interviews might provide new, or additional, insights into why medical students and doctors make the career decisions that they do. It was also possible that potential predictors for careers in general practice, other than those already recognised, might emerge and be investigated further. Methods for predicting career paths of those entering medical school would be of considerable value to educators and health care planners. In order to gather information that might be useful in defining characteristics more likely to predict a career in general practice study doctors were asked to record their date of birth, marital status, number of children, nationality, university or medical school attended and year of graduation on the front sheet of their sci 59 questionnaires. Those returning completed sci 59 questionnaires at the beginning and end of their four month general practice attachment were invited for interview. It was considered

particularly valuable to interview this group since any change in career ranking for general practice could be linked with information gathered during interviews.

I was the interviewer for the study. This had advantages and disadvantages.

Advantages

1. As an experienced consulting clinician I felt that I possessed the necessary skills to conduct research interviews.
2. I considered it an advantage that I was familiar with medical career structuring and the significant changes that have occurred to medical careers in recent years.
3. From the pragmatic point of view I knew that these interviews would have to be arranged at times and venues convenient to doctors. In the main this meant conducting interviews outside working hours on a very flexible basis.
4. I wanted to find answers to questions around career decision making in medicine, I also needed to work towards completion of a thesis. I was therefore powerfully motivated to complete the interview phase of my study.
5. My role as interviewer did not incur additional costs.
6. My aim was to provide a framework for interviewees through which they might explore their own thinking about careers in medicine. I was guided in my interview technique by some of the literature concerning qualitative interviews in medical research (Britten, 1995).
7. It has been argued in encounters where medically qualified researchers interview clinicians that ‘respondents might assume a degree of sympathy on the part of the medically qualified interviewer, and thus be more responsive’ (Myerson, 1990). Since the intention of qualitative research is ‘to give priority to the meanings and attributions that respondents bring to bear on a question’ Chew-Graham (2002) underlines the importance of the interviewer being regarded ‘as someone who is actively involved in constructing those meanings’ as opposed to ‘someone who is present to collect them passively’.

Disadvantages

1. My familiarity with medicine, and medical careers, meant that I might have 'theoretical outlook, interests and expectations' that impinge on the research process itself (Malterud, 1993).
2. After many years in clinical practice I was conscious that I had thoughts of my own about career trajectories in medicine. I had worked in several different specialties and for organizations both inside and outside the National Health Service. Any number of these previous experiences could subconsciously have influenced the content of the interviews. I made considerable efforts to 'bracket…preconceptions sufficiently to accommodate the voice and expression' of those whom I interviewed (Chew-Graham, 2002).
3. I designed the structure of the interviews with my supervisor (ME). I did not involve any other individuals. It is possible that bias could have remained.
4. An experienced research interviewer who had no involvement in the design of the study might have enhanced the objectivity of information gathered during the interview phase of the study. It could also be argued that the research would have consequently been more reproducible.

The final version of the interview questionnaires was produced for the main study on 30th December 2005 (Figure 29).

Tell me where you are in your professional life?
Looking at the career map and career choice inventory
Have you chosen a career path?
Has your choice changed as time passed?
What factors have influenced your choice?
What is your concept of the ideal career?
What did you expect of your general practice attachment during F2?
What was your experience of your F2 GP attachment?
What kind of induction process did you have?
How was your teaching programme designed and developed?
Who did you meet in the practice?
What were relationships like with team members?
In respect of learning
How did you learn?
Did you learn from consulting?
Did you learn from being taught?
Did you receive feedback – if so how useful was this?
Did the experience differ from hospital – if so, in what way?
Is there anything you would change about the attachment?
Did your career choice change as a result of your F2 attachment?
Any other comments

Figure 29 Interview questions December 2005

All interviews were recorded. Consent for their use was obtained in accordance with ethical requirements laid down by the MREC. Transcripts of recordings were made and sent back to interviewees for their approval before they were analysed. The transcribed texts were then thematically analysed with help from NVivo 7.

7.6 Ethical approval

Formal ethical approval for the study was sought through Thames Valley Multi-Centre Research Ethics Committee (reference number 05/MRE12/1). The committee formally considered the request for ethics approval on the 18th January 2005. During the committee proceedings several areas were covered in detail. Full details of ethics approval and correspondence are contained in Appendix D.

The essential minutes, as recorded, are shown below;

Issues discussed were: scientific design & conduct of the study, recruitment, care of participants, confidentiality and informed consent.

Dr Munro attended the meeting and clarified the following:

A. The Protocol needs to be altered to include the matters discussed at the meeting. The Committee was not sure that the study would achieve its objective, because it was not clear what would be in the career assessment instrument, how it was being developed and validated and the intention for future use. Dr Munro stated that, as this was novel work, the instrument was still under development, and he needed to undertake some interviews; but REC approval was required first.
B. With regard to recruitment the application form stated that between 60 and 120 participants would be enrolled in each cohort, but the table in Appendix 10 was confusing. Dr Munro stated that the pagination had been misaligned.
C. Methods of ensuring data anonymity and password protection were not stated, and there was concern regarding confidentiality issues, in particular the recording of any interviews/discussion in the focus groups. Dr Munro stated that he was running the focus groups and that the data would be digitally recorded and stored safely on his laptop which was completely isolated; there would also be back up provision. All computers were password protected. He intended to keep the data longitudinally and acknowledged that he would need to seek new consent should he wish to use that data again in the future.
D. The Committee informed Dr Munro that specific consent should be sought for recording the interviews and for the use of direct quotes and that a new Consent Form should be provided to accommodate these requirements.

The Committee felt that this is an important area to study and very valuable research, particularly because recruitment and retention is difficult in GP practices.

The committee was ‘content to give a favourable ethical opinion of the research’ subject to receiving further clarification. Specifically the committee wished responses to several issues raised at the meeting;

A. It was not clear whether all foundation year students were being approached or a minimum number. If it is all students, the Committee was unclear who had right of access to the list of students from the Deanery, or how the participants might otherwise be approached?
B. It was not clear in the application form where the interviews were being conducted.
C. With regard to the welfare of participants it was not clear what support is available for distress management or feelings of regret – is there an independent counsellor within the Deanery?
D. The Consent Form should include specific consent for recording the interviews and for the use of direct quotes. A template of the Consent Form can be downloaded from http://www.corec.org.uk'"

My response to the request for further information was sent on the 16th February 2005, and is shown below;

A. "Our intention is to invite all doctors within the Kent, Surrey and Sussex Deanery, whose training includes a period of attachment to general practice during their second foundation year, to participate in the study. It is likely that a four month period of attachment during F2 will be approved by the Department of Health. Predicted numbers of potential participants are as stated in the submitted proposal, i.e. circa 60. In the event of a shorter period of attachment being recommended, the number of participants could be higher. The aim remains to invite all those likely to experience a GP attachment during F2. Full operational details of foundation year programmes are only just emerging. It is envisaged that contracts of employment for foundation year doctors will be held by acute Trusts. All Trusts and Health Economies within the KSS Deanery will be informed of the proposed study, as well as the recommendations of Thames Valley MREC. Their local support will be sought. The Dean of Postgraduate GP Education, Professor Abdollah Tavabie, will hold, as part of his training responsibilities within KSS Deanery headquarters, relevant data on all doctors enrolled on F2 GP attachments. This data will be shared with the principal researcher but remain under Deanery control. Close liaison between the Postgraduate Dean, Professor Michael Eraut (my academic supervisor), and the

principal researcher will be maintained throughout the research period. Potential research participants, identified from the Deanery database, will be sent a letter of invitation (version 01c), participation information sheets (version 01a) and consent forms (version 01b1) from Dr Neil Munro, the principal researcher. This model of contact has already been employed within the Deanery in an earlier MREC approved study.

B. Identified provisional sites for interviews include; the Kent, Surrey and Sussex Deanery, 7 Bermondsey Street, London SE1 2DD and the Postgraduate Education Centre, Royal Surrey Hospital, Guildford, Surrey. A flexible approach will be taken to interview sites depending on participant commitments and preferences. Emphasis will be placed on providing an environment comfortable for the participant, protected from interruption and appropriate for recording purposes.

C. Throughout the KSS Deanery there is a network of clinical supervisors, GP tutors and educationalists whose prime role is to support and nurture career development among general practitioners in training as well as established practice. They are experienced practitioners who have received specific training in confidential career advice and guidance. They will be fully informed of the study and will provide both local and regional support to any doctors who may experience career regret as a result of participation in the research programme.

D. See revised Consent Form (version 01b1).

On the 8th March 2005 the Thames Valley MREC replied requesting further information;

The Committee was satisfied with the responses to points A and B.

However, the Committee would be grateful for a more complete response on the following points:

- The Committee would like you to make sure that doctors who are enrolled in your study not only receive information about internal support, but also that they should have access to other means of support such as the BMA confidential helpline. This needs to be inserted into the PIS.
- The Consent Form still needs to use the COREC national standard template which can be downloaded from www.corec.org.uk.

A reply to the letter dated 8th March 2005 was sent to Thames Valley MREC on the 15th March 2005 and included specific replies to two points;

A. Detailed investigation of services provided by the British Medical Association failed to reveal anything specifically designed to give career advice to doctors. It is understood, however, that development of such a service is under active consideration. There are currently two services that offer support to doctors – the BMA Doctors for Doctors Unit and the BMA counselling service. The Doctors for Doctors Unit is committed to providing support for doctors in distress and difficulty by helping them make informed decisions about their health, working with them to gain insight, facilitating access to appropriate care and supporting them through this process. The unit has developed a resource pack as a self-help tool to aid doctors (http://www.bma.org.uk/ap.nsf/Content/Hubhealthandwellbeing). I spoke at length with Dr Michael Peters from the unit and supplied him with our research outline. Although not tasked with advising doctors directly on career options the Doctors for Doctors Unit offers confidential support to practitioners in difficulty and can be emailed on info.d4d@bma.org.uk. The BMA Counselling Service (08459 200169) is a 24-hours a day, 365 days a year service to help doctors and their families with work-related, emotional and personal problems.

B. See revised Consent Form Version 01b2 (10/03/05). Please note minor amendment to paragraph 3 emphasising anonymity.

A letter dated 29th March 2005 from Thames Valley MREC confirmed ethical approval for the study;

> On behalf of the Committee, I am pleased to confirm a favourable ethical opinion for the above research on the basis described in the application form, protocol and supporting documentation as revised.
>
> The Committee has designated this study as having no local investigator. There is no requirement for Local Research Ethics Committees to be informed or for site-specific assessment to be carried out at each site.
>
> **Conditions of approval**
>
> The favourable opinion is given provided that you comply with the conditions set out in the attached document. You are advised to study the conditions carefully.
>
> Please also be aware that if a questionnaire is developed from this study for future use then this should be considered a new study and an application should be made in the usual way.

Reporting processes have required annual returns to the Central Office of Research Ethics Committees (COREC) as well as a final report at the end of the study period.

7.7 Case Study Consent

All doctors who were interviewed had completed interview consent forms as directed by the Thames Valley MREC. During analysis of the interviews six transcripts were converted into case studies, or vignettes, as illustrations of individual doctors' career thoughts and experiences. Fictitious subject names were used in order to preserve anonymity. It was recognised, however, that this might not completely protect individuals from recognition by other parties. In addition the existing interview consents covered attributed quotes but did not encompass case interpretation of transcribed interviews. In order to ensure that informed consent was obtained all six doctors concerned were emailed their case studies prior to completion of the thesis and asked to give their signed or email consent to the extracted material being published within the work. The text of the email is shown below;

> "You very kindly agreed to be interviewed as part of the above study. This is due to be published in the near future as a thesis within Sussex University and will be available in electronic format. Particulars may be sent to various national, international and subject bodies. It will also be possible to download it from the 'Ethos' library service at the British Library.
>
> I have created a number of case studies based on the taped transcripts of our interview to form part of the study analysis. The case names have been changed in order to hide identities and preserve confidentiality. However medicine is a small community and I would seek your explicit permission to use the attached case in my thesis.
>
> If you are happy for this information to be used as it is, I would be grateful if you could sign the enclosed consent form and email/mail/fax it back to me (details below). If you wish me to modify it in any way please let me know. I would entirely understand if you would prefer me not to include the attached case and would remove it from my final submitted thesis.
>
> I would like to thank you again for taking part in the study. I am very happy to send you the full thesis when approved (hopefully). Please let me know if you would like me to do so."

The wording of the consent was agreed between NM and ME and emphasised the potential wide availability of the material (Appendix B page 24). Consent was obtained from all six doctors. One doctor asked for their substituted name to be changed.

7.8 Governance approval

In addition to MREC processes, approval for National Health Service governance purposes was obtained from all Trusts within the Kent, Surrey and Sussex Deanery. Primary Care Trusts had responsible individuals with authority to grant permission on behalf of several Trusts, but hospitals required a single submission to each Trust. This process was achieved over a six week period, ending at the beginning of August 2005.

The number of Trusts involved is shown in Table 19 below. The full titles of the Trusts giving their permission for the study to proceed are listed in Appendix C.

Table 19 Trusts within KSS Deanery requiring governance approval

"Counties"	Acute Trusts	Primary Care Trusts
Kent	4	3
Surrey	8 Trusts for these two	5
Sussex	counties combined	14

In addition to initial approval, all Trusts sought annual reports and completion of study submissions.

7.9 Statistical analyses

The data from the sci 59 questionnaires were processed by software programmes supplied by the Open University. A list of career choices was generated for each respondent. The position of general practice was noted before and after the four month attachment in general practice during foundation year 2. In addition comparison was made with the output from questionnaires returned a year later. Data were recorded on Excel and statistical analyses performed using SPSS version 17.

Text from interviews was coded using NVivo version 7. NVivo is a software package that performs qualitative data analysis (QDA) on large amounts of text, where deeper inspection of subsets of data may be required. The product came into use in 1999 and is manufactured by QRS International.

Chapter 8: Results from Questionnaires

8.1 Invitation and response rates

Table 20 shows (1) the number of Kent, Surrey and Sussex (KSS) doctors invited to participate in the study, and (2) the response rates to questionnaires before and after participants' four month attachment during foundation year 2.

Table 20 Questionnaire response rates before and after a four month general practice attachment

	Year 1 August 2005 to July 2006	Year 2 First Cohort August to November 2006	Year 2 Second Cohort December 2006 to March 2007	Year 2 Third Cohort April to July 2007	Year 1 & 2 Total
Numbers invited to participate	50	63	58	54	225
Responses to 1st Questionnaire	39(78%)	45(71%)	30(52%)	29(54%)	143(64%)
Responses to 2nd Questionnaire	34(68%)	36(57%)	25(43%)	22(41%)	117(52%)
Number * responding to both Q'naires with unspoiled paired returns	34(68%)	35(56%)	22(40%)	21(39%)	112(50%)

* the excluded participants included five who returned only a 2nd questionnaire, one who completed both questionnaires *after* their four month attachment in general practice in their F2 year, and one who failed to complete sufficient questionnaire items (at least 124 out of 130 was needed for sci 59 to compute a career ranking).

The first cohort (n=50) had higher return rates than those in year 2 – either individually or collectively. Motivation to respond may have been different between the first and second year groups, possibly because the first year participants might have been more likely to choose general practice as one of their three clinical components of the foundation year 2 programmes on offer. The paucity of general practice opportunities

and the innovative nature of these new training pathways could have attracted those specifically more interested in general practice – and thus more likely to actively contribute to its evaluation.

By the time of recruitment of the second year group there were many more programmes that included general practice. A number of doctors may have wished to pursue other careers but were only able to do so by opting for a twelve month programme that included general practice.

8.2 The impact of MTAS (the Medical Training Application System)

A further significant event, which occurred half way through data collection from the year 2 group, may have adversely affected response rates. The medical training application system (MTAS) was created during the implementation phase of modernizing medical careers (MMC). This was a web-based, on-line selection system developed with an external provider, Methods Consulting. This company had previously set up recruitment services for NHS vacancies (Shannon, 2007). MTAS successfully managed about 6000 applications for those embarking on a foundation training year 1 in October 2006. The problem arose when recruitment to specialist training programmes went live in January 2007 and received over 34,500 applications. The basic concept was to centralize job applications for junior doctors ensuring that all juniors would apply using the same application forms at the same time. Under the previous system, doctors sent in application forms accompanied by curriculum vitae at different times of the year – and for several different posts. Whereas, under MTAS all doctors completed a common on-line application form at the same time. They were permitted to apply for a maximum of four training posts which they were expected to rank order in terms of preference.

By April 2007 it became apparent that the system was in disarray. The short listing process collapsed with many of the best candidates not even being offered interviews. The MTAS website itself failed at critical times and was often inaccessible. The number of applicants significantly exceeded expectations due to inaccurate workforce planning data and higher than expected applications from doctors trained abroad. With only 23,000 training places available (including 3000 GP trainees) the shortfall in career based training became all too apparent. After pressure from several sources, including

two dozen consultants who wrote to the Times urging immediate abandonment of the selection system, MTAS was considerably modified mid-stream. All doctors in England were offered interviews for the post they listed as first choice. A second round of applications running along more traditional lines (a short listing process with submission of curriculum vitae and later interviews) was arranged for unsuccessful first round candidates.

This debacle left many doctors disillusioned about their career prospects. The British Medical Association surveyed 964 junior doctors in the third week of April 2007. Half thought they would not be working in the NHS within a decade. An equal proportion no longer considered medicine a lifelong career. Concerns were also expressed about the nature of questions asked at interviews (Brown, 2007).

Another study at the time looked at 790 anonymous on-line responses to a survey on the impact of MTAS on the wellbeing of junior doctors. 21% had agreed, or strongly agreed, with the statement “I have been having more thoughts of ending my life than usual”. 94% reported higher levels of stress over the previous six months with 96% attributing this to MTAS (Lydall et al., 2007). One third reported drinking more heavily and a similar number making more mistakes in their daily practice.

The impact of the MTAS fiasco was profound on the 2nd year participants in my study, and this may have reduced questionnaires return rates.

8.3 Changes in career rankings after general practice attachments

As previously described, sci 59 generated a list of matched career options for each participant based on their responses to a 130 item questionnaire. The position of general practice as a preferred career was recorded at the beginning and at the end of the four month general practice attachment. The full results including position change before and after the 4 month attachment in general practice are shown in Appendix E (Figures 1 & 2, Tables 1-24).

8.3.1 Change in career preference

112 out of 225 doctors invited to participate in the study completed sci 59 questionnaires at the beginning and end of their four month attachment in general practice during foundation year 2. These 'raw' career positions were treated as ordinal variables. Non-parametric methods were used to test whether mean ranked position of general practice changed over this period. A two tailed test was employed because it was not possible to predict with confidence whether doctors were more or less likely to prefer general practice after their attachment.

A Wilcoxon two tailed test of the difference between means on the two test occasions for the 112 participants resulted in a Z score of -1.758 (p = .079) (Appendix E Tables 1 & 2). Although there was some improvement in career position following analysis of the completed 2nd sci 59 questionnaire this was not significant at the 5% level. The mean sci 59 rankings were therefore not changed significantly by the four-month placement.

However, it was suspected that participants in year 1 were different from participants in year 2. Year 1 participants were smaller in number and entirely composed of volunteers for a new training route that included four months general practice; whereas some of those in year 2 undertook general practice because it was linked to other clinical areas in which their interest primarily. To test this hypothesis, similar analyses were conducted using the test results from year 1 (Appendix E Tables 3 & 4) and year 2 (Appendix E Tables 5 & 6) participants. These revealed Z scores of -1.735 (p=0.080) and -0.923 (p=0.356) respectively, neither of which were significant at the 5% level. So this suspicion was not borne out.

8.3.2 *'Q1 to Q2 movement'* – a new measure

The possibility that rank changes might be dependent on initial ranking was explored. In order to assess this, a measure, *'Q1 to Q2 movement'*, was generated that represented the movement of a participant's rank from that obtained when analysing questionnaire 1 responses to that obtained from analysis of questionnaire 2 responses. This resulted in a range of rank changes running from -59 to +59 A constant was added (59) to avoid

negative values. Thus a value for each participant ranging from 0-118 could be computed and compared to initial rankings. This allowed use of parametric statistical methods. Frequency of *'Q1 to Q2 movement'* results within the study population is shown in Appendix E Figure 1.

8.3.3 Changes in sci 59 rankings

Use of *'Q1 to Q2 movement'* made further hypothesis testing possible. The hypothesis that those with higher rankings of general practice at the outset, i.e. on analysis of their 1st questionnaire, might react differently in terms of ranking change at the end of their attachment, when compared to their colleagues who recorded lower initial rankings, was considered. Pre-conceived ideas of what to expect in UK general practice may have played a significant role in determining responses to the first questionnaire. It could have been, for instance, that overseas participants had different expectations of working in general practice compared to those who might have spent considerable time experiencing general practice throughout their undergraduate training.

8.3.4 Comparing mean rankings between questionnaires

When examining the upper and lower thirds of participants rankings on sci 59, the mean ranking of general practice had lessened among those who ranked general practice higher on their 1st questionnaire (10.947 versus 13.132, p=0.084) (Appendix E Table 7) and increased among those with lower initial rankings (37.263 versus 33.579, p=0.019) (Appendix E Table 8)[3].

When the mean rankings of upper and lower 56 participants were calculated, both a reduction in position of those whose 1st questionnaire rankings were higher (13.93 versus 14.41, p=0.679) (Appendix E Table 9) and an improvement in position among those whose 1st questionnaire rankings were lower (33.70 versus 30.52, p=0.011) was found (Appendix E Table 10).

[3] Tables in the Appendix are reproduced from SPSS calculations which do not limit statistics to the appropriate number of significant figures.

8.3.5 Questionnaire 1 rankings and *'Q1 to Q2 movement'*

Comparison of questionnaire 1 rankings and *'Q1 to Q2 movement'* showed that significant positive movement occurred in terms of sci 59 career rankings among those who least preferred general practice at the outset of their 4 month attachment (Appendix E Table 11 and 12). However for those initially more inclined towards a career in general practice, the negative difference recorded was not significant. These results need to be interpreted with caution since, in any data with a repeated measure, there is likely to be an effect of regression towards the mean.

8.3.6 Investigating national differences

In order to examine whether the nationality of participants resulted in significantly different *'Q1 to Q2 movement'*, comparisons were made between UK nationals and non UK nationals. The frequency of *'Q1 to Q2 movement'* within the study population looked normally distributed on first impression; and this was confirmed by a subsequent one sample Kolmogorov-Smirnov test (Appendix E Table 13).

Parametric tests showed that there was no significant difference in the changes seen on, before and after questionnaires among UK and non UK nationals, thus rejecting the earlier hypothesis (Appendix E Table 14).

8.4 Exploratory regression analysis

Interview data had demonstrated the importance of a number of key factors in determining whether or not foundation doctors decided to pursue a career in general practice. In order to explore the potential contribution of recorded independent variables to the differing outcomes, a regression analysis was performed.

8.4.1 Selecting variables

Inter-correlations were calculated for the independent variables identified from participant response data (Appendix E Table 15). In order to meet the inclusion requirements for correlation, dichotomous variables were constructed for nationality

(UK versus rest of the world), university (UK versus rest of the world), marriage (not married versus married) and cohort (1st cohort versus 2nd and 3rd cohort). Each cohort covered four months of time.

It was also postulated that there might be a difference in experience if the general practice attachment came at the beginning of the second foundation year rather than the middle or the end. Once more nationality was divided into UK and non–UK groups, since it was considered that their expectations of training and working in the National Health Service might be different between the two groups. Similarly it was felt that UK university training would lead to a different perspective on general practice training compared to those trained abroad. The one divorcee was treated as non-married. Age was included as a continuous variable and gender as a more obvious dichotomous variable. Nine out of 112 participants had children. This low number did not meet requirements for inclusion in the analysis, so the 'children' variable was excluded.

8.4.2 Examining the correlation matrix

For the initial run of the multiple regression analysis, it was considered advisable to reduce the number of variables; since significant amounts of variance in the dependent variable are only rarely attributed to more than three independent variables. None of the independent variables correlated with *'Q1 to Q2 movement'* scores to any significant extent, which suggested that there was either a genuinely multivariate relationship to the *'Q1 to Q2 movement'* scores or that the data were randomly distributed. In order to investigate the correlation matrix further, the strongest correlate with *'Q1 to Q2 movement'* was sought – gender 0.114 (p=0.230). The weakest correlate with gender was then identified as cohort 0.017 (p=0.859). Cohort had a weak correlation with other variables and a relatively strong correlation with age and university. University had the lowest correlation with *'Q1 to Q2 movement'* and highest correlations with age, marriage and nationality. It was also noted that age and marriage were negatively correlated. For the preliminary investigation it was decided to exclude marriage and university on orthogonal grounds and to use age, nationality and gender in the multiple regression. It was also decided to add cohort on a second run to determine whether patterns were significantly altered.

8.5 Exploring potential contributions of independent variables to *'Q1 to Q2 movement'* changes

Following the definition of retained independent variables, an exploratory regression analysis was conducted using age, nationality and gender on all 112 participants. However, none of the independent variables contributed significantly to the *'Q1 to Q2 movement*' change observed (Appendix E Table 16). This situation remained unchanged when cohort was added to the primary independent variables arising from the correlation matrix (Appendix E Table 17).

8.5.1 Basic data used in the sci 59 side of the study

Demographic data gathered on the study population included numbers in each cohort (Appendix E Table 18), participant distribution in age (Appendix E Figure 2), gender (Appendix E Table 19), marital status (Appendix E Table 20), number of children (Appendix E Table 21), nationality (Appendix E Table 22), and country of undergraduate training (Appendix E Table 23). The raw data derived from sci 59 returns, including *'Q1 to Q2 movement'*, dichotomous independent variables and legend, are shown in Appendix E Table 24.

8.6 Summary of questionnaire results

Examination of all participants' career rankings, based on analysis of their completed sci 59 questionnaires before and after a four month F2 attachment in general practice, revealed a small improvement in career intent towards general practice; but this was statistically significant only at the 7.9% level. The tendency for doctors in year 1 to show more movement in career terms, albeit not statistically significant, than those in year 2, led to a suspicion that differences in recruitment processes for doctors in year I and year 2 might have impacted on the 'before and after' rankings. However, non-parametric testing of the difference between year 1 and year 2 respondents failed to confirm this suspicion.

It was hypothesised that those with higher initial career rankings on their 1st questionnaire might generate different results from their counterparts who had lower

initial rankings. This was thought to be attributable to greater awareness and exposure to general practice during undergraduate training among those expressing higher initial preference, whilst those with lower preferences may have had less relevant UK experience during their early training years. This latter group might include those born or trained abroad. In order to explore this further, a *'Q1 to Q2 movement'* denoting change in sci 59 ranking between both questionnaires was developed. Those whose initial rankings for general practice were higher revealed a slight non-statistically significant, drift downwards after the four month attachment whereas those with lower career rankings, in the first instance, showed a statistically significant improvement in their later ranking of general practice. Caution needs to be exercised in interpreting such a result since there is a possible effect of regression towards the mean with a repeated measure.

Another avenue considered appropriate to explore was whether UK and non-UK nationals demonstrated any difference in their response patterns. Analysis did not reveal any significant differences in respect of career position change.

In depth interviews of some participants had suggested that there were a number of key factors influencing foundation doctors in their decision as to whether or not they pursued a career in general practice. In order to explore the potential contribution of some of the independent variables identified through the questionnaire data collection process, a multiple-regression analysis was carried out on the study population dataset. This followed identification of independent variables within the inter-correlation matrix.

Independent variables initially included age in years, gender and nationality with cohort being added on a second analysis. No variable was found to significantly contribute to the *'Q1 to Q2 movement'* change observed. It was therefore not possible to identify factors from the information gathered on questionnaires that might explain the statistically significant improvement in ranking observed in those foundation 2 doctors with initial lower rankings for general practice. Whilst these results may reflect the variables available for use in the analysis it is possible that sci 59 lacks the sensitivity to detect small shifts in intent over a four month period during the second foundation year. Aspects of the development of sci 59 that may have contributed to this have already been discussed.

Nevertheless there is a suggestion that those rating general practice lower on their 1st questionnaire record higher ratings after their attachment in general practice. Further research is needed in order to confirm or refute these findings since they are important to health care planners, the profession and society as a whole. With approximately half the medical workforce being required in general practice and only about a quarter of new medical graduates expressing interest in general practice as a career, any intervention that increases recruitment to general practice will be of considerable interest.

Chapter 9: Results from Interviews

All those completing questionnaires were invited to take part in either a telephone or face to face interview. 4 pilot interviews were conducted during the summer of 2005, and were sufficiently similar in their questioning to be included in the sample, as shown in Table 21;

Table 21 Completed interviews by year and cohort

	Pilot interviews (pre-August 2005)	Year 1(August 2005-July 2006)	Year 2 First Cohort(August 2006-November 2006)	Year 2 Second Cohort(Dec 2006-March 2007)	Year 2 Third Cohort(April 2007-July 2007)	Year 1 and 2 Total
Numbers interviewed	4	10*	4	7	5	30

* Transcription of one recording was inadequate for analysis purposes

All material was transcribed. Individual interviews were summarised independently by the author into broad based themes and subordinate headings for each transcript (Appendix F; Table 1 & 2).

9.1 Themes from thirty interviews

The author then identified common themes from all interview transcripts. To provide a second opinion, ME independently listed themes from the first 13 transcripts selected in alphabetical order. The results of both analyses were compared and a collated list of themes was agreed. These were used as Free Node headings in NVivo 7.

9.1.1 Before medical school

Influencing factors before age 16

Early experiences of medicine

Family modelling

Supportive family

Inspirational doctors

Social standing of medicine

Altruism[4]

Influencing factors between age 16 and medical school

A/AS level choices

Degree programmes other than medicine

Work experience in healthcare

Travel and gap year experience

9.1.2 Undergraduate/medical school and foundation year 1

Undergraduate experience

Enjoyed all subjects

Specific dislikes

Role models during training

Reasons for choosing subjects

Excitement of acute medicine

Impact of A&E

Working in hospitals

Experience of undergraduate GP placements

Teamwork in hospital

Quality of teaching

Foundation year 1 and general practice

Hospital view of GPs

Work-life balance

Choice of foundation year 1 placements

Experience of GP placements

Working abroad

[4] The OED describes *altruism* as "selfless concern for the well being of others". Its meaning depends on the context and the viewpoint taken. Behaving altruistically is usually interpreted as showing willingness to help others or do 'good' without reward. Altruism may also have connotations in some scientific or religious contexts; but, for the purposes of this thesis, altruism describes a career intent that focuses on caring for others more than oneself.

9.1.3 Foundation year 2 experience

GP activities

- Compulsory versus voluntary
- Understanding role of GPs
- Making own decisions
- GPs with special interests
- Continuity of care
- Challenging medicine
- Limited on call
- Service demands

Practice environment

- Suitable for training
- Treated as equal
- Friendliness in practice
- Making own decisions
- Social isolation
- Work ethic

Teaching and learning

- Quality of induction
- Quality and timing of supervision
- Quality of feedback (including video)
- One to one training
- Observing different doctors
- Informal learning in GP
- Role of formal teaching
- Informal training through discussion and observation
- Learner led training
- Styles of consulting

9.1.4. MTAS (Medical Training Application System)

- Demoralisation
- Geographic displacement
- Working abroad
- Medicine not a career for life

Unemployment

No control over career trajectory

Too early to choose

Subsequent analysis categorised sources and references by the Free Node headings derived from subject interviews (Table 22).

Table 22 Free node thematic analysis of 30 interviews

Name	Sources	References	Created	Modified
Early Experiences of Medicine	9	10	06/03/2009	19/03/2009
Family Modelling	10	10	06/03/2009	21/03/2009
Supportive Family	7	7	06/03/2009	19/03/2009
Inspirational Doctors	4	7	06/03/2009	21/03/2009
Social Standing of Medicine	3	7	06/03/2009	19/03/2009
Altruism	19	22	06/03/2009	21/03/2009
A and AS level choices	7	8	06/03/2009	19/03/2009
Degree Programmes other than Medicine	12	13	06/03/2009	20/03/2009
Work Experience in Healthcare	16	18	06/03/2009	21/03/2009
Travel and Gap Year Experience	4	8	06/03/2009	21/03/2009
Enjoyed all Undergraduate Subjects	11	14	06/03/2009	21/03/2009
Specific Dislikes during Training	16	22	06/03/2009	22/03/2009
Role Models during Training	6	6	06/03/2009	19/03/2009
Reasons for Choosing Subjects	24	47	06/03/2009	22/03/2009
Excitement of Acute Medicine	7	8	06/03/2009	21/03/2009
Impact of A & E	9	15	06/03/2009	19/03/2009
Working in Hospitals	15	25	06/03/2009	22/03/2009
Experience of Undergraduate GP Placements	19	27	06/03/2009	21/03/2009
Teamwork in Hospital	12	14	06/03/2009	22/03/2009
Status of Doctors	1	2	06/03/2009	19/03/2009
Status of Students	0	0	06/03/2009	06/03/2009
Quality of Teaching	10	13	06/03/2009	22/03/2009
Hospital View of GPs	17	21	06/03/2009	22/03/2009
Worklife Balance	16	23	06/03/2009	21/03/2009
Choice of FY1 Placemements	9	10	06/03/2009	21/03/2009
Preconceptions of FY1 Placements	1	1	06/03/2009	08/03/2009
Experience of GP Placements	5	5	06/03/2009	21/03/2009
Working Abroad	2	4	06/03/2009	19/03/2009
Formal Teaching in GP	10	11	06/03/2009	21/03/2009
Informal Learning in GP	17	19	06/03/2009	22/03/2009
F2 Compulsory vs Voluntary	16	19	06/03/2009	22/03/2009
Understanding Role of GPs	17	23	06/03/2009	22/03/2009
Making Own Decisions	7	9	06/03/2009	21/03/2009
GPs with special interests	7	8	06/03/2009	21/03/2009
Continuity of Care	3	3	06/03/2009	19/03/2009
Challenging Medicine	8	8	06/03/2009	21/03/2009
Limited On Call	2	2	06/03/2009	21/03/2009
Service Demands	5	7	06/03/2009	21/03/2009
Environment suitable for learning	14	18	06/03/2009	22/03/2009
Treated as Equal	2	2	06/03/2009	15/03/2009
Friendliness in Practice	16	19	06/03/2009	21/03/2009
Social Isolation	5	5	06/03/2009	21/03/2009
Work Ethic	7	9	06/03/2009	19/03/2009
Quality of Induction	20	21	06/03/2009	21/03/2009
Quality and Timing of Supervision	17	22	06/03/2009	21/03/2009
Quality of Feedback (inc video)	21	30	06/03/2009	22/03/2009
One to One Training	14	17	06/03/2009	19/03/2009
Observing Different Dcotors	16	17	06/03/2009	22/03/2009
Role of Formal Teaching in F2	17	21	06/03/2009	21/03/2009
Informal training through discussion and observation	13	14	06/03/2009	21/03/2009
Styles of Consulting	7	8	06/03/2009	17/03/2009
Demoralisation with MTAS	8	12	06/03/2009	21/03/2009
Geographic Displacement	4	4	06/03/2009	21/03/2009
Opted to work abroad	4	4	06/03/2009	19/03/2009
Medicine not a career for life	11	12	06/03/2009	21/03/2009
Unemployment	4	4	06/03/2009	21/03/2009
No Control over Career Trajectory	10	11	06/03/2009	21/03/2009
Too Early to Choose	9	9	06/03/2009	21/03/2009

Headings such as status of students and preconceptions of FY1 placements generated no source material from the interviews. This may have been due to differing interpretations,

between NM and ME, of the syntax and meaning of statements made within the interviews or a result of the questions used in the interviews.

All references were then clustered under thematic headings in order to facilitate discussion. Attributes of individual interviewees were also linked with extracts of interviews. The attributes included in the analysis are shown in Table 23;

Table 23 Individual attributes used in thematic analysis

Name	Type	Created	Modified
Children	String	07/03/2009 12:23	07/03/2009 12:23
Cohort	String	07/03/2009 15:17	07/03/2009 15:18
Gender	String	07/03/2009 12:03	07/03/2009 12:04
Marital Status	String	07/03/2009 12:10	07/03/2009 12:12
Medical School	String	07/03/2009 12:08	07/03/2009 12:10
Nationality	String	07/03/2009 12:04	07/03/2009 12:08
Year of Birth	String	07/03/2009 12:16	07/03/2009 12:18

The properties of each attribute are shown in Tables 24-30;

Table 24 Number of children

Attribute Values		
Value	Description	Default
Unassigned		☑
Not Applicable		☐
0		☐
1-3		☐
More than 3		☐

Table 25 Cohort of study participants

Attribute Values		
Value	Description	Default
Unassigned		☑
Not Applicable		☐
Pilot		☐
1st year		☐
2nd year		☐

Table 26 Gender

Attribute Values		
Value	Description	Default
Unassigned		☑
Not Applicable		☐
Male		☐
Female		☐

Table 27 Marital status

Attribute Values		
Value	Description	Default
Unassigned		☑
Not Applicable		☐
Single		☐
Married		☐
Separated/Divorced		☐

Table 28 Medical school

Attribute Values		
Value	Description	Default
Unassigned		☑
Not Applicable		☐
UK		☐
EEA		☐
non-EEA		☐

Table 29 Nationality

Attribute Values		
Value	Description	Default
Unassigned		☑
Not Applicable		☐
UK		☐
EEA		☐
non-EEA		☐

Table 30 Year of birth

Attribute Values		
Value	Description	Default
Unassigned		☑
Not Applicable		☐
After 1980		☐
1975-80		☐
1970-75		☐
Before 1970		☐

Matrices defining attributes by numbers of interviewees per cohort, percentage per cohort and word count are shown in Tables 31-33.

Table 31 Attribute matrix by cohort (number of interviewees)

	Pilot	1st Year	2nd Year
1 : Children = 0	4	9	16
2 : Children = 1-3	0	1	0
3 : Children = More than 3	0	0	0
4 : Gender = Male	1	1	6
5 : Gender = Female	3	9	10
6 : Marital Status = Single	3	8	11
7 : Marital Status = Married	1	2	4
8 : Marital Status = Separated/Divorced	0	0	1
9 : Medical School = UK	4	6	12
10 : Medical School = EEA	0	1	0
11 : Medical School = non-EEA	0	3	4
12 : Nationality = UK	3	8	14
13 : Nationality = EEA	0	0	0
14 : Nationality = non-EEA	1	2	2
15 : Year of Birth = After 1980	1	5	8
16 : Year of Birth = 1975-80	3	3	4
17 : Year of Birth = 1970-75	0	1	4
18 : Year of Birth = Before 1970	0	1	0

Table 32 Attribute matrix by cohort (percentage)

	Pilot	1st Year	2nd Year
1 : Children = 0	16.7%	15%	16.7%
2 : Children = 1-3	0%	1.7%	0%
3 : Children = More than 3	0%	0%	0%
4 : Gender = Male	4.2%	1.7%	6.3%
5 : Gender = Female	12.5%	15%	10.4%
6 : Marital Status = Single	12.5%	13.3%	11.5%
7 : Marital Status = Married	4.2%	3.3%	4.2%
8 : Marital Status = Separated/Divorced	0%	0%	1.0%
9 : Medical School = UK	16.7%	10%	12.5%
10 : Medical School = EEA	0%	1.7%	0%
11 : Medical School = non-EEA	0%	5%	4.2%
12 : Nationality = UK	12.5%	13.3%	14.6%
13 : Nationality = EEA	0%	0%	0%
14 : Nationality = non-EEA	4.2%	3.3%	2.1%
15 : Year of Birth = After 1980	4.2%	8.3%	8.3%
16 : Year of Birth = 1975-80	12.5%	5%	4.2%
17 : Year of Birth = 1970-75	0%	1.7%	4.2%
18 : Year of Birth = Before 1970	0%	1.7%	0%

Table 33 Attribute matrix by cohort (word count per person)

	Pilot	1st Year	2nd Year
1 : Children = 0	18855	27795	60037
2 : Children = 1-3	0	2453	0
3 : Children = More than 3	0	0	0
4 : Gender = Male	3662	2502	26072
5 : Gender = Female	15193	27746	33965
6 : Marital Status = Single	15193	24308	43444
7 : Marital Status = Married	3662	5940	14673
8 : Marital Status = Separated/Divorced	0	0	1920
9 : Medical School = UK	18855	18037	45393
10 : Medical School = EEA	0	2454	0
11 : Medical School = non-EEA	0	9757	14644
12 : Nationality = UK	12451	22944	52183
13 : Nationality = EEA	0	0	0
14 : Nationality = non-EEA	6404	7304	7854
15 : Year of Birth = After 1980	4340	15605	35424
16 : Year of Birth = 1975-80	14515	9736	12747
17 : Year of Birth = 1970-75	0	2453	11866
18 : Year of Birth = Before 1970	0	2454	0
Mean Word Count per Attribute	6285	10083	20012

Those who completed two questionnaires (n=113) from year 1 and 2 of the study were also asked to complete a brief questionnaire looking at factors influencing career choice. This questionnaire was used in earlier work reporting the impact of foundation training on newly qualified doctors. Response rate was 12% (n=14) with female preponderance (n=12).

The compilation of responses in shown below (Table 34);

Table 34 Factors influencing career choice (brief questionnaire)

Factors	Very Important	Important	Not Important
Domestic Circumstances	6	6	2
Financial Circumstances whilst training	2	9	3
Promotion/career prospects in chosen specialty	5	9	
Anticipated ease of obtaining a career post	5	9	2
Self-appraisal of own skills/aptitudes	7	6	1
Advice from others	3	10	1
Careers advice	3	7	4
Inclination before medical school	3	2	9
Student experience of chosen subject	6	6	2
Experience of jobs in training	9	5	
Enthusiasm/commitment: what I really want to do	11	3	
Influence of family members		6	8
Influence of consultant in previous job		10	4
Sci45 – a career advice tool		3	11

This very small sample showed the importance of enthusiasm and commitment. Experience of jobs in training was also cited as central to optimal decision making. Inclination before medical school had little impact on career choice. Whilst domestic circumstances played an important role in career plans, the influence of family members was modest in comparison. Advice from others clearly influenced doctors' career paths and invites further enquiry into the role of friends and contemporaries in career decisions. Promotion prospects and ease of obtaining career posts were clearly seen as important or very important by the majority of respondents. Little useful function was seen for sci 45 (the precursor to sci 59) and the influence of consultants was not a dominant feature of participants' responses.

9.2 Interviews -analysis of thematic coding

Data were subject to thematic analysis using NVivo 7. A number of factors have to be taken into account when interpreting findings emerging from the analysis;

1. All those who responded to two questionnaires, and expressed an interest in being interviewed, were interviewed.
2. 27% of those invited to be interviewed agreed to help. This represented 13% of the entire study population.
3. The gender proportion of interviewees was different from questionnaire responders. 27% (8/30) of interviewees were male compared with 44% (35/79) who responded to both questionnaires.
4. Some initial interviews (the 4 pilot interviews and 2 year 1 interviews) took place face to face. The remainder were carried out by telephone.
5. Interviews from all three years were included in the analysis.
6. NM conducted all the interviews
7. The template of themes was derived from a combination of versions drawn up by NM and ME. No other individuals or groups were involved.
8. Not all themes were individually easily recognizable and had to be absorbed within other themes. This process is described in the results section.
9. The interview schedules changed slightly between the pilot study, year 1 and year 2. Emphasis between years may have been influenced by the addition of specific questions. Most of this focussed on the induction and learning phase of the general practice attachment during foundation year 2.
10. Foundation training has been undergoing a process of continual development over the 3 years of the study. As a result, no two years were identical in organisational terms. Background factors in relation to changing training patterns, or working conditions within other specialties, may have impacted on the relative attractiveness of general practice as a preferred career option. Examples of such issues include pay, employment prospects and the availability of part time working. These may not always have been picked up through interviews.

11. The MTAS debacle dominated much of the discourse of those interviewed towards the latter half of year 2. Several participants took part in the interview phase of the study in the immediate aftermath of the computer failures. Uncertainty about the future was at its height at this time. In the event many of those rejected by MTAS were later offered an employment interview. This episode had not occurred previously and has not been repeated since.

In the original research plan a schematic chronology of factors influencing career decision making was proposed, based on background reading at the time (Figure 30).

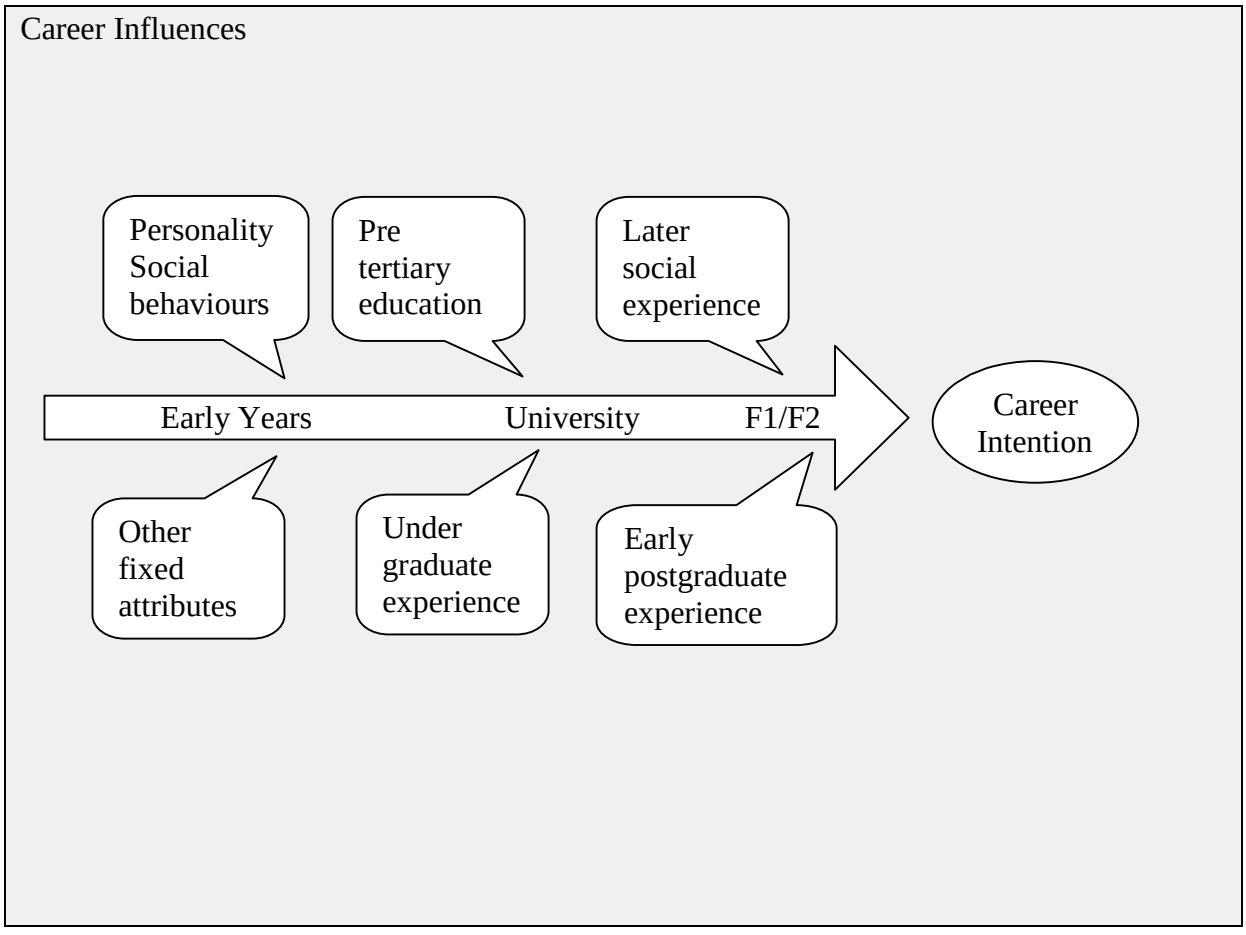


Figure 30 Chronology of factors influencing career decisions

This representation closely mapped the clustered headings emerging from interviews conducted over the following three years. The collated themes from the thirty interviews

are based on categorisations found in Table 22 (page 155). Sections were considered under the four broad headings;

- Before medical school
- Undergraduate/medical school and foundation year 1
- Foundation year 2 experience
- MTAS

9.2.1 Before medical school

Influencing factors before age 16

Early experiences of medicine
Family modelling
Supportive family
Inspirational doctors
Social standing of medicine
Altruism

Influencing factors between age 16 and medical school

A/AS level choices
Degree programmes other than medicine
Work experience in healthcare
Travel and gap year experience

9.2.2 Influences before the age of 16

Early experiences of medicine

The first recollection of a wish to study medicine, or become a doctor, could be very early in life. For some it was experience of illness, either personally or within their family, that provided the initial interest in medicine as a career. Others developed interest as a result of greater awareness of medicine through the media.

When I was 6 years old, my sister was ill a lot of the time at Great Ormond Street hospital and I was probably quite impressionable at that age and I saw all the doctors walking around and from that stage on I always said I wanted to be a doctor. (Female, year 1)

Some initially did not regard medicine as a realistic option in academic terms but found themselves unexpectedly afforded the opportunity to study medicine.

Well, I thought it was out of my reach really. I went to a comprehensive and not many people go to university and I was thinking about physiotherapy or something like that, but one of the…. the deputy head who was doing my career advice said why don't you aim higher. You've got the grades so why don't you try for medical school. (Female, year 1)

Family modelling

The influence of medical members of families was variable. Some found family influences burdensome and confusing, while others found comfort in the familiarity of a medical environment when considering their career paths. Early, and continuing, experience of the medical profession as a child clearly influenced thinking about career trajectories among many respondents.

I was about 12 or 11, quite young. I come from a family of doctors and it just seemed to be the things that I could do and be good at, sort of thing, it was something I was interested in. (Female, year 2)

my Dad is a GP and my Mum was a nurse, so I had been exposed to medicine a lot; so it was probably the first thing that leapt to mind. (Female, year 2)

the age of 12 or13, before that I wanted to be a nurse, my mother's a nurse and I think that probably was a significant influence, she always talked about scaling up my ambitions because, given my schooling, she thought I should do medicine, but I also considered veterinary. (Female, year 2)

For those with little or no medical family background, reasons for choosing medicine as a career were more wide ranging. Parental aspiration played a part, to a varying extent, in the choices of children approaching University age.

I don't really have any doctors in the family or anything…I had a friend who was studying medicine so she might have influenced me but I can't really think of other people. (Female, year 2)

I think it was quite a lot of pressure on me applied on my parents' side, to go to medical school. (Female, year 1)

Supportive family

Support from families was a common theme throughout the interviews. There was clearly a difference in terms of awareness of a career in medicine between those family members who had experience of medicine and those who did not. In some cases this limited the value of the support and, for a few of those interviewed, families played very little part in career support. However, the majority enjoyed strong backing from enthusiastic family members.

I don't come from a medical family and they were all quite shocked when I wanted to do medicine. (Female, pilot study)

My parents are just supportive. They've never [been] people who've told me what they think I should do. (Female, year 2)

Choosing medicine is entirely my decision. No one has actually sort of influenced me to do anything else other than medicine. (Male, year 2)

Inspirational doctors

Medical students, and newly qualified doctors, encountered inspirational role models during work experience and later clinical years as undergraduates. Some teaching clinicians left lasting impressions.

I did 2 weeks of work experience for an orthopaedic surgeon in Kent and really enjoyed that; and it was the only real exposure I had to possible medicine up and to that point; and it looked like great fun - lots of Meccano, lots of action. (Female, year 1)

For those in clinical practice there were several examples of peers, or senior clinicians, who influenced the career trajectories of their team members. Professional relationships between young doctors, and those with whom they worked closely during their formative years in early clinical practice, impacted significantly on the career choice of a number of interviewees. This influence sometimes extended between university students studying for degrees other than medicine and resulted in significant career change.

Career choices I guess have changed. When I applied to medical school, I very much wanted to be a GP as I was very much influenced by my GP at home, who is still my GP and has been since I was 5 or 6 months old, and he had a big influence on me. I enjoyed spending time with work experience and I had been much influenced by the way

he looked after various members of my family. He looked after my father's parents when they were dying and he was quite an old fashioned country GP and I very much admired that. (Male, year 2)

Social standing of medicine

Some doctors mentioned that the standing of medicine within society was important in their career decision making. Key elements included respect and security of employment. Some were attracted to general practice because of the perceived working flexibility it provided, as well as the challenge it offered in terms of running a business.

I realised the things that you could get from general practice were everything I wanted to do, because it was more flexible and you are your own boss. It's like running a business which I also enjoy, so I thought GP was the right choice. (Male, year 2)

I should be important, respected, a social life and choose what I want to do as well as when I want to do it. (Male, year 2)

Cultural influences also played a part in determining career choice. Ethnicity and career value sets varied among interviewees and their families. There were considerable external pressures on some students to conform to the expectations of the society or culture to which they belonged.

In India there are only two good things to do career-wise: engineering and medicine; and if you're a bright student and if you're not an engineer or a doctor, people start to wonder what's wrong with you. (Female, year 1)

Altruism

Many comments of an altruistic nature were made by interviewees. Challenge, job satisfaction and enjoyment as well as the opportunity to help people were reported most frequently as reasons for pursuing a career in medicine and general practice. Challenge was regarded in both intellectual and development terms, with the emphasis being on learning and improvement.

I want to be constantly challenged, well not sort of challenged but I really love learning things, and I want something which is going to be consistently interesting to me as I can't bear the thought of just turning up working for money and going home. (Female, year 2)

the most important thing for a career is that I'm passionate about it and will not begrudge the long hours or taking work home with me, and I've got to look forward to things at work, so that was probably the biggest influence over a career that I chose. (Female, year 2)

Finding a satisfying occupation was seen by many as the prime driver in their career development. This was reported by those considering differing career paths. Being useful to society was a theme that ran through many comments. A sense of service as well as community commitment was evident:

I think the ideal career is something that you can spend the time and do it and love it and enjoy it and, especially for medicine, you feel rewarded and respected for it, you know, just personal satisfaction that you are actually making a difference and you are a somebody, I think that would be really, really important in a career for me. (Female, year 2)

just feel like I am making a difference, you know this is what medicine is all about, trying to treat the whole person and just thinking outside the box not just in terms of your medical knowledge but more kind of thinking about them, you know the model and their behaviour and trying to change their habits and yeah I think that was the thing that made me chose general practice. (Female, year 2)

Not everyone reported high levels of satisfaction in their early medical careers. Even in the formative stages of their working lives, some were aware of general lack of motivation.

I think that is the root of the problem, is drive. There is nothing, if there was something I really loved to do then you would sacrifice things to do it. (Male, pilot study)

9.2.3 Influencing factors between age 16 and medical school

A and AS level choices

Choice of A level and AS level subjects influenced career paths. Several study participants had initially taken non-science subjects, including arts and languages, with the aim of studying for a first degree and subsequently converting to medicine whilst at university or following graduation. Some universities provided science conversion courses for able students with insufficient grounding in sciences prior to enrolment on medical degree courses. Other interviewees had changed tack during their A level studies. Reasons given for switching to medicine included general uncertainty over

future employment prospects as well as wanting to be a doctor. One interviewee regretted making just such a change of direction.

I think at school I liked languages and art subjects best, I did those A levels and then thought I'd do that at university and then didn't know what to do, so kind of fell into accountancy, and then while I was doing that I kind of starting thinking back to when I was much younger, probably kind of 11 or 12 when I wanted to be a doctor, and kind of thought again that that was probably more what I wanted to do and therefore applied for medicine. (Female, year 1)

I regret more the fact that once I got my … A-levels and I had done my UCAS application, one of the universities was LSE to do economics and I was accepted to do that as well as the foundation course at Kings, and I do sometimes regret not doing that. (Male, pilot study)

Degree programmes other than medicine

For several interviewees the initial decision to pursue undergraduate medicine occurred during, or after, training in other vocational or academic subjects. Some had the concept of pursuing medicine firmly embedded before they undertook their degree programme, whereas others developed their interest in medicine later.

The job I did at the time, I did medical engineering and I hadn't really spent any time in hospitals before then, and then with that job I was spending a bit of time in hospitals and having a bit of contact with different medical professionals, and then that looked sort of interesting. (Male, year 2)

I was originally studying physiology and it was some time during that degree, when I was doing a lot of lab work with the intention of going on and doing some sort of doctoral or post doctoral research, that I realised that was not really what I wanted to do, so I guess it would have been during that time really I thought seriously about whether I could do medicine. (Female, year 2)

Samantha

Samantha was interviewed as she came to the end of her second foundation year. As a child she had wanted to be an astronaut but did not think of this in career terms. She excelled at languages and initially selected English, French and Spanish as her A level choices. On the first day of her sixth form she changed her mind and switched to Biology, Chemistry and Mathematics. She had quickly developed doubts as to the usefulness of her language A levels for job opportunities. She described the thinking behind changing courses as 'like a blinding flash of light'.

She did not want to become a teacher and did not really see what else she might do with three language A levels. She felt that taking science subjects would provide her with the possibility of becoming a doctor and subsequent improved employment prospects. Her father was a general practitioner and her mother a nurse. As a child she had witnessed how hard her father worked and had determined that she would not become a doctor. When she changed her mind, her father tried to dissuade her from medicine pointing out that, since childhood, she had always said she would avoid it. Nonetheless she went ahead and studied medicine

She sought a varied career that was intellectually stimulating. She also wanted a job that had reasonable work life balance. She became interested in global health issues including poverty and development, sanitation and infectious diseases and HIV whilst at university and met other people working in those particular fields. This sparked her interest in public health. General practice, which she placed above hospital specialties, was her plan B.

Interview Career Choice: Public Health

Sci 59 positions:	Public Health	Before 13th	After 7th
	General Practice	Before 31st	After 27th

<u>Work experience in healthcare</u>

The majority of those interviewed had undertaken work experience in health care prior to studying medicine. This could take the form of a GP or hospital attachment, working in a nursing home or working abroad. Not all experiences were positive influences on future career intent but most people found interest in the human contact.

General practice and hospitals

Attachments to general practice or hospitals were commonly reported by interviewees and encouraged by medical schools and universities. Prospective medical students had undertaken a wide range of clinical activities, including time in anaesthetic, neurology, psychiatry and accident and emergency departments, working with people with learning disabilities, working as an auxiliary nurse or in a children's playgroup, working in a pharmacy or learning how a general practice works. Whilst the impact was generally positive, not all placements were regarded in a positive light.

Before I went to medical school I worked as an auxiliary nurse, so I got to work within the hospital system and interact with doctors and other hospital staff, it was nice to picture myself in that environment and I could, I could see myself there as one of the doctors in the team, so that definitely influenced me as well. (Female, year 2)

I spent a week in a neurology ward which was quite rubbish, I was working…I didn't really understand what I was doing and I had to travel for about an hour and a half to get there, it was just…..I didn't really have anything to do, I was following the nurses around a bit but I never really got a good understanding of what was going on. (Male, year 2)

Gillian

Gillian was interviewed during a post in Accident and Emergency medicine. Prior to medical school, she had had job experience with an orthopaedic surgeon and had been attracted to the technical aspects of the specialty. At medical school she developed an interest in the more general aspects of acute medicine and thought about anaesthetics and ITU. She envisaged that medical specialisation would provide a more versatile career than a narrow surgical specialisation. She said that she had been switching between acute medicine and anaesthetics but had always thought about emergency medicine in the background. She had encountered influential registrars during medical school and in her first house job. She found some of them inspiring. They were confident, very knowledgeable and very cool under pressure. She acknowledged a degree of hero worship. She identified one registrar in particular who was described as a 'really lively dynamic yet cool calm collected chap'. Her aim was to be like him.

When she started her foundation year 2 she thought she wanted to do general medicine and had taken Part 1 MRCP with that intention in mind. During her A&E attachment she had set her mind on a career in emergency medicine but was not absolutely convinced that this would be her career in 10 years time.

She was critical of Modernising Medical Careers in that it forced doctors to make career choices too early. She thought that further attachments in the specialties she had identified as being interesting would greatly help her make up her mind. She had even contemplated becoming dually accredited – in medicine and A&E – but thought that the system worked against her selecting this portfolio type career.

She enjoyed her GP F2 attachment. Although it did not change her career preference, her reasons for not wanting to do GP were slightly different from those that she had at the beginning. She was surprised at how much she enjoyed the medicine in general practice but missed the team atmosphere and felt relatively isolated compared to a hospital.

Interview Career Choice: A&E

Sci 59 positions:	A&E	Before 14th	After 6th
	General Practice	Before 11th	After 10th

Nursing homes

Work experience in nursing homes was commonly reported during interviews. For some this was the first time they had come into contact with significantly ill people. The experience furthered their interest in understanding disease processes. For others the reality of caring for a vulnerable group was demoralising, although the value of the experience was realised later on.

I was a care worker in a local nursing home …being cynical about it was no good…but also just being involved with people who are sick and the close involvement with that side, I really liked it, and wanted to get more involved with the scientific side of things as well. (Female, year 2)

I applied for deferred entry because I wanted to travel, and the first couple of months of that I spent working as a health care assistant in a nursing home, which now I think is a good experience, but then I thought it was absolutely bloody awful. I absolutely hated every moment of it. It was very hard work… in an old age nursing home for people with dementia or just general medical problems. (Male, year 2)

Working abroad

A few went abroad for their work experience and learned to manage cultural and linguistic challenges as well as those relating to medicine.

I also spent a month on a bone marrow transplant unit at the local teaching hospital in Hong Kong which gave me some idea of what was going on, although I must confess I was not too much aware of what was going on because an awful lot of it happened in Cantonese. (Male, year 2)

Travel and gap year experience

For several interviewees travel was a central element in their future career plans. Some had lived, or travelled, abroad as children and others wished to gain experience of living and working in other parts of the world. The possibility of combining a medical career with travel was being seriously considered by some of the interviewees. Only a few had personal ties that prevented them travelling more widely.

It is the main reason [working abroad] I went into medicine in the first place. That's what I want to do. (Female, year 2)

I think the experience…yeah my experience of travelling. I realised that it is something I would like to do more of, and I think that also influenced why I chose the foundation I did, because I did want to do a foundation year with general practice in it. (Female, year 1)

one that involves me travelling and doing some pre-hospital medicine and some expedition medicine and being able to combine all of that really and possibly doing some research into, sort of physiology type research into high altitude kind of thing. (Female, year 2)

I think if I could travel with my medicine that for me would be the most fantastic thing. Why? Well I've always sort of wanted to, I want to see the world and I think if I could combine that with my job then that would be amazing, but I don't, in terms of …do you mean like family and children and things? I don't I think I would just take that as it happens, it's not something I would plan for, you know you can't plan for something that you don't know is going to happen. (Female, year 2)

9.2.4 Summary of influences before university/medical school

Many of those interviewed decided on a career in medicine at a very young age. Some had experience of close contact with the medical profession through personal or family illness whilst others had been influenced by media images of doctors and medicine. Those with strong family backgrounds in medicine, or members working in professions allied to medicine, cited their relatives' opinion of working in medicine as important in their own decision making. Those with no family members working in medicine seemed more emphatic in their personal decision to pursue a career in medicine. They had clearly made their minds up mainly on their own. They talked of general family support for their chosen career but were noticeably less able to share in subtler career decisions such as choosing a particular specialty, than their contemporaries with family medical backgrounds. There was some 'scaling up' of ambition, following A level results, evident among those who originally had not envisaged studying medicine. Those undertaking degree programmes other than medicine talked of being influenced by medical students they came into contact with or work placements that involved medical environments. One interviewee, whose first degree was physiology, decided to reject the post doctoral world of laboratory work for an occupation that involved caring for people.

A number of doctors had originally undertaken arts A level subjects. Some contemplated taking conversion courses later in order to study medicine whilst others,

for a variety of reasons, had changed to science subjects mid course. Interesting cultural attitudes appeared with those from the Indian subcontinent pursuing medicine, because it was deemed a respected occupation within that society. A few others mentioned prestige and position within communities as being important factors in their decision to study medicine.

A strong sense of vocation was evident among interviewees. Academic and human aspects of medicine were highly valued. Intrinsic interest in people as holistic entities with family networks was frequently identified as crucial to professional satisfaction in medicine. Being useful to society was seen as an essential element of being a doctor, as was the need to constantly learn and be challenged intellectually in daily working lives. There was mention of ‘making a difference’ to other peoples’ lives. Financial gain was never mentioned, and ‘love of the job’ was the predominant wish of those interviewed.

Most interviewees had undertaken work experience in nursing homes, hospitals, GP practices or working abroad, before applying for medical school. For some it was their first contact with medical environments and was clearly influential in confirming their wish to study medicine. The experience of those who worked in nursing homes, however, was more mixed with some scepticism emerging in later interviews. Several people had travelled in their gap year. For some this influenced their choice of specialty, while others regarded travel and medicine as two complementary activities in later life.

9.3 Undergraduate/medical school and foundation year 1

Undergraduate experience

Enjoyed all subjects

Specific dislikes

Role models during training

Reasons for choosing subjects

Excitement of acute medicine

Impact of A&E

Working in hospitals

Experience of undergraduate GP placements

Teamwork in hospital

Quality of teaching

Foundation year 1 and general practice

Hospital view of GPs

Work-life balance

Choice of foundation year 1 placements

Experience of GP placements

9.3.1 Undergraduate experience

The themes ‘status of doctors’ and ‘status of students’ did not result in any clustering of comments and have therefore not been reported.

Enjoyed all subjects

This was a common theme among respondents. Many enjoyed nearly all their training and were quite undecided on their career paths by the end of time at University. The ability of some students to engage quickly with their current attachments was striking. Several described themselves as students who wanted to pursue a career in whatever they were studying at the time.

Well as I was going through medical school I wanted to do pretty much everything, I enjoyed virtually all of my attachments. Large chunks of it were incredibly interesting. Yeah I went through a brief phase of wanting to do pretty much everything. (Female, year 2)

I was one of those medical students who wanted to do whatever I was doing at the time. (Female, year 1)

I changed my mind so many times, I think I wanted to be a GP initially, then each specialty I did I quite enjoyed and found it difficult to decide. (Female, year 1)

Specific dislikes during training

Some participants managed to identify areas of medicine in which they would not like to work. They were influenced either by the attachment itself or by the people they came across during the attachment. Some had preconceived ideas of specific roles and

could not see themselves fitting in. Others reacted to unhappy or un-enjoyable experiences by excluding certain careers from their final choices - even though they had might have considered that particular career prior to the attachment.

The process of exclusion was seen as helpful by most of those interviewed. They generally had views on the likelihood of pursuing a particular specialty prior to attachments. In most cases the attachment confirmed their initial feelings about that career but occasionally they were surprised by their experience. This process of exclusion was helpful in choosing a career, because it enabled doctors to narrow down their range of options.

A succession of general surgical SHOs who seemed so thoroughly miserable in their training schemes that quite a few of them put me off doing general surgery. (Male, year 2)

It was useful to cancel some things out, things that I didn't think I was interested in anyway like orthopaedics and surgery. Those kinds of things you don't really know until you have spent some time in them. (Female, year 2)

I definitely shouldn't be a psychiatrist… medical specialities and general practice were the ones that it said I should do. (Female, pilot study)

At medical school I thought I wanted to be a cardiologist but…I did cardiology for 4 weeks and just really didn't enjoy it at all. I was disappointed and I didn't think it was for me. (Female, year 2)

Role models during training

When asked about specific role models during training that might have influenced individual career choices, many interviewees had difficulty in recognising specific examples. Those who recollected role models cited family medical members as well as peers and teachers who had made an impact on their career plans. Given that medical training, particularly during clinical years, has historically been based on apprenticeship relationships, this is perhaps surprising. It could be argued that the move towards competency based training has lessened the impact of senior clinicians on their junior's career paths. In addition the influence of these individuals, in teaching and training terms, may have been diluted by exposure to a broader training community.

It is hard to identify particular individuals I think, you mean career within medicine or before it? I think before it, it was some of the doctors I met, there are no specific individuals just you know meeting quite interesting people who enjoyed their job. That was quite influential. Within medicine I think, people you meet at medical school, different lecturers either can make subjects seem interesting or not. (Male, year 2)

I can't really think of any individuals that stand out influencing my career choice. The way I'm heading now is more from peers with similar interests that I kind of got to know through medicine and other activities and they are more kind of sort of where I realised what I do and don't like. (Female, year 2)

Probably some registrars and consultants that I've worked with, sort of seeing how they've worked and that sort of influenced how I think I want to work as well and who I want to be; and my older brother is a doctor as well and I sort of discussed it with him, sort of what he wants to do and what I want to do and I think that's probably influenced me. (Male, year 2)

Reasons for choosing subjects

This theme produced a large number of comments from all interviewees. Reasons for choosing career paths include those relating to academic understanding of a subject area, being useful to society, financial security and influence of others. Some remained uncertain of their career path even after exposure to a range of specialties.

1. Academia and understanding

Learning about, and understanding, disease processes was commonly reported by interviewees. Many were also curious about the people they came into contact with as part of their training or working lives. Some found that interest developed in a particular subject, and this helped a student to persist despite being exposed to other specialities during their postgraduate years. Others had found their early clinical experiences to be very damaging and had become disillusioned with medicine.

when I think…you know its medicine for me…..I think it's more complex and interesting and there's more layers I think to go through, but also the fact that things are much more immediate with this side of things. (Female, year 2)

For me its something where you are continuously learning, there's study involved, but at the same time I like the people side, I like meeting lots of people and talking to lots of people and being quite nosey about them or curious about them, finding out about them I suppose, so I like the blend of that. (Female, year 2)

I finished my house jobs I thought I was going to give up medicine because I had such a nightmare… I like the idea of knowing one thing well. The idea of being in general practice and having this vast amount of knowledge or you know people come in with so many things and you're never going to be an expert in everything … that's the only thing I don't think I like about general practice. (Female, pilot study)

2. Useful to society

There was reference in some of the interviews to societal needs. Several respondents had altruistic motives in pursing a career in medicine that affected their career choice.

It is something that is useful to society, [personally] fulfilling… financially secure… different every day and challenging and constantly giving you new opportunities and challenges. (Female, pilot study)

People I met at university and medical school. I got involved with a group called MEDSIN which is medical students international network, which is more interested in global health issues like poverty and development, sanitation and infectious diseases, HIV and … that has kind of what influenced my career choice. (Female, year 2)

I enjoy the one to one thing with patients. I also come round to thinking I may, if I can, become a ships' doctor… and remain with a broad level, particularly anaesthetics, radiography and GP, the 3 where you remain [with a] very broad knowledge base, and I wish to remain with a broad knowledge base. (Female, pilot study)

3. Financial security

During the study period (2005-2007) the remuneration of general practitioners had attracted some media attention. Revision of contract negotiations had resulted in significant increases in profits for general practitioners along with expansion in salaried posts. For general practice registrars, however, the situation was less attractive since payments for on call in hospitals significantly increased salaries for junior hospital doctors. Whilst some respondents cited economic factors as important in their career decisions, most regarded remuneration as less important than many other factors.

I am very aware that GPs right now have a very attractive financial package, having chatted to a fair few of them, I'm not certain that will last, but I've never been too conscious about having to make huge amounts of money. (Male, year 2)

I think an ideal career would have certainly at the earlier stages lots of possible routes to chose from really, so you can sort of experience things and then find out what you enjoy, then make a choice based on that later on, and then financial security is

important as well, a combination of work-life balance is important as well. (Male, year 2)

I suppose the downside from my point of view right now is the pay was a lot lower than a hospital job with weekends and nights and things. (Female, pilot study)

4. Influence of others

Other influences on career direction came from less obvious sources including non – medical family members. Several interviewees thought that external factors, such as the implementation of Modernising Medical Careers, played a part in determining their career trajectory. Making career decisions, however, seemed to rest predominantly with the individual who, in turn, determined their direction through mechanisms that were not entirely clear to the outside observer. There was some suggestion that doctors were confident with decision making processes that they had used in other aspects of their lives. Although they listened to external advice they often chose to ignore it.

My dad's in the police and I thought that was kind of an influence and I'd been sort of taught by a forensic pathologist and really enjoyed that, and then as I, I mean I knew very little about medicine generally and then at some point I decided I wanted to be an obstetrician because I decided I wanted to deliver babies, but again complete naivety of what their job actually entailed, and then about fourth year medical school I decided I wanted to do anaesthetics. (Female, year 2)

Advice from peers is variable and usually based on personal experience and what they've done and this is how I did it and this is how you should do it. That doesn't seem to hold much weight. Um, from mentors and the supervisors and such. Um yeah, some advice has been erstwhile and sort of constructive advice on applications and things has been quite good but, speaking for myself I didn't ask for that advice I sort of carried on myself and figured it out. (Female, pilot study)

I think it is a lot to do with what is happing now with MMC, because it is a government target as I believe, it is 70% of graduates go to the primary care, and you kind of feel it, they are cutting down on the positions in the hospital, and graduates in hospital medicine are not so bright as they used to be. (Female, year 1)

<u>Continuing uncertainty of career choice</u>

Uncertainty over career direction was commonly reported by interviewees. Narrowing down choice was as much about excluding certain specialties as identifying one particularly matched to individual strengths. There was evidence of changing decisions during foundation training. Whilst some changes could be related to experience of

clinical attachments factors external to the education process played an increasing role. A few reported being more confused and less certain after their attachments.

it was always going to be a choice between general medicine or GP, I was always leaning more towards general practice but I think family factors may have tipped the balance a bit more[still]. (Male, year 2)

a lot of sacrifices to be made, more in some specialities than others; and I wasn't certain that I was prepared to do that because I wasn't sure that I liked the job that much, still not sure. (Male, pilot study)

When I started my foundation year 2 I thought I wanted to do general medicine and I took MRCP part one with that intention in mind and, having gone through the year, I thought I wanted to do emergency medicine and so I've made some fairly big choices in the last few months and I'm not absolutely convinced that this is what exactly I will be doing the next 10 years time. (Female, year 2)

Excitement of acute medicine

Experience of acutely ill patients is a key feature of immediate postgraduate hospital training. The speed and excitement of acute medicine was a specific draw for several interviewees. It was recognised that the first year after graduation was exacting in educational and occupational terms. For many this was a strong draw to hospital medicine. A need to be competent in acute or life threatening situations was seen as a worthy and important aim. Several contrasted this fast moving clinical experience with the clinical exposure they had in primary care.

Medicine is great for me 'cause there are always patients going off everywhere, and challenging…yeah to the extent where I feel quite stretched as a person, that side of things I really like. (Female, year 2)

It was the one time when I've kind of gone to a placement and people have been teaching me things and I've actually thought yeah I want to go home and read up about this and learn more. I loved the physiology, I loved the challenge of it, I loved the practical hands on aspect of it, I liked the fact that at times it can be really challenging and sort of obviously stressful and obviously at the moment I would be way out of my depth in any of those sort of situations, but I'd love to learn and I'd love to be able to [be] competent in sort of stressful situations. (Female, year 2)

I found GP frustrating that it took so long to get a blood result or a chest x-ray – I don't think I realised how impatient I was, I prefer the speed of hospital medicine. (Female, year 2)

Impact of accident and emergency attachments

Most doctors undertook an attachment in A&E during their foundation training. During the study period maximum four hour waits for patients in A&E were key national targets for all acute NHS Trusts. Whilst the A&E experience was positive for several (including attracting people to a career path in emergency medicine) others found their time less than fulfilling. Many found the experience of managing patients within a time frame a useful learning exercise although some found interference from non-clinical managers irksome. Others found the time limit helpful in that it restricted their commitment to individual patients and resulted in discrete and definable periods of care.

Interviewees generally regarded the A&E officer role as one with considerable responsibility. More clinical decisions fell to them than in their previous jobs. Several viewed their time in A&E as important in expanding their general clinical experience and developing their communication skills.

A&E I found a fantastic experience and I was sort of gaining general experience but it was not something I wanted to do long term. (Female, year 2)

A&E was quite a leap from… whatever you're doing previously. I think it was good experience in terms of learning how to manage patients within a time frame and also gaining responsibility with regards to making decisions. (Female, pilot study)

While I do enjoy emergency medicine in terms of… see them, treat them, pass them on… you have the challenge of every night what's wrong with them, but you don't have the down side of having them just sitting on the ward for weeks on end waiting for a nursing bed. (Female, year 1)

Working in hospitals

Clinical exposure during undergraduate training is heavily biased towards hospital based care. Interviewees gave a wide range of responses when asked whether they had enjoyed or valued their first year of hospital medicine. For some the experience was novel and exciting. For others the prospect of working on wards for several years prior to becoming a consultant was daunting and unattractive. Long hours and unsocial work patterns were frequently mentioned as real deterrents to a long term commitment to hospital medicine. A few doctors compared their time in general practice directly with their early hospital experience and felt that the initial attractiveness of acute medicine

would wane with time. There were doubts that a career in hospital medicine would be worth the lifestyle sacrifices that would have to be made.

Before I did my student attachment in general practice I knew I probably wasn't going to go into general practice, just because I'd already been hooked to be honest by the buzz of hospitals. (Female, year 2)

I suppose I just enjoyed being in a hospital, I enjoyed the kind of the way it works almost, and how you've got various different jobs and kind of constant flow of patients to see, but at the same time you see some people quite a lot in a lot of depth and then hopefully they get better and go home, or you continue your care and I liked working with different groups, kind of nurses and physiotherapists and things. I just like hospital life I think. (Female, year 2)

I suppose the reality of working shifts and that kind of thing as well, definitely, in terms of the life style balance……and the reality of finding things such as like running to cardiac arrests and that kind of thing, things that at first you think this is what's really exciting about medicine, ….sacrifices really because it's not going to interest me for very long because I can feel it already, the sort of excitement and adrenaline is already being lost really. (Female, year 2)

I know it sounds terrible, but the heartsick patients in GP I found quite difficult to do. (Female, year 1)

Experience of undergraduate general practice placements

Attachments to general practices during undergraduate training were common among the study populations. Experiences varied considerably and were sometimes at odds with those encountered during foundation training. There were limitations in terms of professional satisfaction as an undergraduate (students were unable to act in the role of a physician) and much depended on the quality of the attachment and trainers. The initial experience on clinical attachments to general practice was particularly important. Most students were not familiar with the environment of general practice and took some time to adapt. They were quick to identify disorganised practices and seemed to gain less than their peers who were attached to practices with more structured learning environments. In addition there appeared to be little in the way of a 'standardised general practice experience' with a wide range of arrangements being reported among interviewees. Periods spent in general practice as a student also seemed to vary considerably. This contrasted with foundation attachments which had more uniformity across at least one Deanery.

I did a 3 month attachment in general practice which was brilliant, in my final year of medical school and it gave me good insight into what it was like to be working as a GP, but I knew that I didn't want to do it. (Female, year 2)

I was quite surprised throughout medical school how little general practice we did. Every time we had our placements in general practice I was quite sure that general practice was what I wanted to do long term, but it's nice that doing the specialties I've developed areas where I would like to specialise as a GP. (Female, year 2)

During my undergrads put me more and more against general practice…..they were busy inner city practices in quite poor areas and I felt they were quite difficult jobs really and they were jobs that you find skills that I didn't think I particularly had. (Male, year 2)

The GP I was with wasn't very helpful, kind of not very good at educating from that point of view…..It made me really not consider general practice as a career at all, all I wanted was to get on with that module, finish it, turn the page and do something else. So that's why I surprised myself when I did general practice earlier this year and I really loved it so much; and it really makes a difference what kind of trainer or educator you have. (Female, year 2)

Ian

Ian was interviewed towards the end of his second foundation year. He decided on medicine as a career in his early teenage years after reading a medical thriller. He enjoyed all subjects that he studied at medical school except psychiatry. He had several general practice attachments during his undergraduate years. The first took place in his third year when he had little experience of other specialties. He found that he understood little of what went on around him in that five week placement and 'sat in the corner'. He felt that he did not learn much from his time in the practice.

His second attachment took place in his final year after he had sat his written finals and after he had rotated around several other specialties. He greatly enjoyed the independence and responsibility of this later attachment and valued particularly seeing patients on his own. He decided that he was happy doing general practice and that unless 'something else really grabbed' him he would end up as a general practitioner.

His early intent was reinforced by his foundation attachment. His clinical work experience prior to his foundation year 2 placement in general practice had not been particularly fulfilling. In his hospital posts, he had felt that he was doing a job over which he had scant influence. By contrast he found general practice enjoyable. It was the first time he really cared about his work. He was doing what other people expected and at the same time enjoying a degree of independence he had not hitherto encountered.

He also found the four month attachment useful in dispelling some doubts about general practice. He had encountered several peers who became general practice registrars, without undertaking any postgraduate attachment in general practice, and had become disillusioned with their career choice. These same people went back into hospital medicine and felt they had been disadvantaged by their venture into the world of general practice.

Interview Career Choice: General Practice

Sci 59 positions: General Practice Before 10th After 8th

Teamwork in hospital

Hospital specialties are now organised in many large teams. Historically, general practice has always emphasized the importance of teamwork, but specialist services seem also to have similarly supportive structures. The impact of teamwork on individual decision making in hospital posts was reported by several interviewees. For many being part of a hierarchy, particularly early in a clinical career, was both comforting and exciting; but others found themselves lost in larger teams. Some contrasted their hospital team experience with a sense of isolation and self-dependence when they moved into general practice. It seemed that teamwork in general practice was less obvious to doctors coming from hospital posts than popularly believed. This finding was unexpected. A number of factors may contribute to this perception of contemporary general practice; consulting alone, spending time entering data on computers, long and overrunning surgeries, telephone consulting, home visits, and checking repeat prescriptions all tend to be individual activities.

I really love that, being part of a team and the communication side of things, I find that really rewarding….just being part of a team and the buzz and the interactions between different disciplines. (Female, year 2)

[When] in hospitals…you rarely make decisions by yourself …more of a team decision, and there are always other people around. Here of course I can always go and ask people, but in any one consultation it is up to me to lead it, and that's very different. (Female, year 2)

[In hospitals] you have all the investigations. You have this team of consultants and registrars and you know things seem to happen very quickly. (Female, year 1)

there is team work, but it is very, very different to secondary care, there is a really good atmosphere within the practice, and everybody would help each other out and was helping. Everybody was working to the same goal, but it was much more tangible than having a nurse next to you seeing a patient or helping you with a procedure, it's a different kind of team. (Female, year 2)

Quality of teaching (in hospitals)

Teaching in hospitals was of very variable quality. Several interviewees learned from junior hospital doctors and a few from consultants themselves. There were some references to being self-taught and having little opportunity to ask questions. It was recognised that some learning took place as part of daily working. Seeing patients and

learning from clinical encounters was regarded as central to hospital teaching. Favourable and unfavourable comparisons were made with general practice. Hospital work was seen as more predictable and defined, whereas the range of knowledge and skills needed for general practice seemed, at times, impossible to acquire.

I think in hospitals the most crucial element to my learning was actually seeing the patients, dealing with patients' problems, again teaching was useful in its own approach but no I think in actual fact it was very similar, but I got the most out of actually seeing the patients. (Male, year 2)

I feel like hospital medicine is more kind of learning by osmosis and you don't really know that you're learning everything cos you don't have the formal feedback; you have maybe one session with your consultant at the end of the job to tell you how you're doing. (Female, year 2)

Yes, because I think in hospitals you do learn a lot from your registrar particularly, which I didn't have in the GP. (Female, year 2)

Laila

Laila was undertaking a paediatric attachment during her second foundation year when interviewed. She had already chosen paediatrics as her future career. She had greatly enjoyed her undergraduate placement in paediatrics. She felt that she learned a great deal. She had had some difficulty being accepted into paediatric training but had always thought that she would go into hospital medicine. She found that previous experience in paediatrics seemed to be a pre-requisite to being accepted onto a training programme. Competition was intense and although short listed several times the absence of paediatric posts on her CV had been problematic. She had also come to realise that the reality of working in a hospital was quite different from the vision she had developed as a student. She enrolled on a foundation programme partly in order to gain this early experience. She had had two eight week attachments in general practice as a student and had enjoyed the experience. Her impression had been reinforced by a positive attachment during her second foundation year. She enjoyed the variety of general practice, being responsible and being part of a primary care team. She still intended to pursue a career in paediatrics but regarded the prospect of becoming a general practitioner with a special interest in paediatrics in a much more favourable light than before her general practice attachment.

She had found the nurse practitioner in the practice the most helpful of those involved in the teaching process during her foundation placement. They ran joint surgeries. Laila felt that she could learn from, and teach, her nurse practitioner colleague – this seemed a powerful and important relationship. Although she had a good working relationship with the doctors in the practice she was able to relate in a more personal and effective way with her nursing colleague.

Interview Career Choice: Paediatrics

Sci 59 positions: Paediatrics	Before 4th	After 1st
General Practice	Before 18th	After 11th

9.3.2 Foundation year 1 and general practice

In this section ‘foundation year 1 placement preconceptions’ were not in particular evidence. Both the pilot phase and year 1 group had considerable experience of traditional pre-registration houseman posts rather than early foundation experience. The theme of ‘working abroad’ overlapped heavily with ‘travel and gap year experience’. The comments collected under the former were merged into the latter. Similarly themes

of formal and informal teaching in general practice in F 1 could not be easily separated from those occurring in F 2. Hence they have both been absorbed within the teaching and learning section of F 2.

Hospital view of general practice

'Bad-mouthing' of general practice has been reported widely in the world literature. Whilst there were some positive views of general practice (continuity of care and relationships with patients) many interviewees reported adverse perceptions of the specialty, either during their undergraduate years or in their postgraduate clinical posts. There was evidence of negativity towards general practice, particularly among junior hospital doctors. Many saw general practice as a 'lifestyle' choice with low academic status. Some felt that general practitioners did little work and referred most patients to hospital. They felt the job would be boring and intellectually non-challenging. They described it as 'the easy option'. Most interviewees thought one of the greatest benefits from an obligatory four month attachment in general practice during foundation training for all doctors would be to raise awareness of the strengths and limitations of general practice among future specialists.

Sometimes people in hospitals can be very critical about GPs and referrals and I think it is because they don't appreciate exactly what facilities you have in GP and what you can and can't do, and I think [that] if everyone was to experience that, it maybe a bit more harmonious, certainly among the juniors, I don't think it is an issue among the consultants. (Female, year 1)

I think you can get stuck in a hospital and people are often quite rude about GPs and say they've referred this in for no reason, or why has the GP not done these tests, but I think you just get an appreciation of quite the amount of work that is done in general practice and what people have to go on, like you know very short consultation, and also so many of the people that you see in general practice don't get referred up to hospital, and I think people in the hospital forget that, so I think you just get a much better appreciation of what's done before people get to hospital and equally people out in the community could do with a bit more information about what you've done in the hospital and why. (Female, year 2)

They were based on things I'd heard in the hospital. Things like GPs don't do anything, they sit around and all they do is refer patients to the hospital and that was the impression I went into general practice with. But it was quite different I was actually quite overwhelmed with the number of cases that came through and how difficult it was to diagnose them, because it is a clinical diagnosis without much technical support. Not like hospital where you're testing from the minute someone comes in. (Female, year 1)

Work life balance

Achieving a balance between the demands of, and opportunities offered by, a professional life and the requirements of a family and social life was a prominent feature of interviewees' responses during their foundation programmes. Career decisions were being influenced significantly by changing personal circumstances and ambitions, but establishing the degree to which external factors were playing a role in determining future direction was difficult. There were clear gender differences in this respect, with nearly all comments coming from female doctors. Besides getting more acceptable working hours, doctors were looking for some flexibility in their professional roles and were actively looking at options to limit their professional time commitments. A policy of 'work to live' rather than 'live to work' was adopted by some.

I think something that gives a good balance between a challenge, stimulation, interest but also allowing you to have a full life outside of work. Well, I mean everybody's different and it changes for an individual person over time as well, but that you've got enough time and energy outside work to do what you want to do. (Female, year 2)

I have to get a sense of fulfilment in doing what I can do what I have skills for. But there also has to be work life balance. I have to have time away from work enough to do other things, to have a family, have fun as well. I can't just….. I'm not a workaholic. (Female, year 1)

my ideal to be honest is I'm heading towards work to live, rather that a live to work sort of concept, and I think something like emergency medicine or GP is much more suited to that then hospital medicine or surgery. (Female, year 1)

I've just recently got married and I'd be thinking more about family life and having children of my own as well, so a career that would allow me to do that… would be an extra bonus. (Female, year 2)

Choice of foundation year 1 placements

Those considering specialist careers emphasised the importance of early experience in their specialty area. These foundation posts played a key part in helping several interviewees see themselves in a later professional role. For a few, however, the experience was negative and quite damaging. It would be helpful to understand more about new graduates' expectations of their foundation year 1 placements and relate that to their actual experience.

I really hated the last six months of my house jobs and really didn't like it and thought I had made a huge mistake. (Female, pilot study)

I did an F1 attachment in anaesthetics and that pretty much confirmed it for me, I mean I was really lucky to get that, but it's just what I wanted to do and I got the job and it just sort of cemented it really, and I loved it. (Female, year 2)

The experiences I had [as a] post graduate… the love of general medicine really started to kick in my medical house job, I really enjoyed [it.] (Female, year 1)

9.3.3 Summary of influences during undergraduate/medical school and foundation year 1

The general enjoyment that students derived from their undergraduate training was almost universally recorded. Many were undecided on career intent as undergraduates and found most, if not all, of their clinical attachments attractive. Some students excluded some specific careers en route as a result of their undergraduate experience. A number cited general practice in this regard with movement towards, and away from, the specialty being evident. Equally, some interviewees, who expressed early preferences for particular careers, were discouraged by their specific attachments. Clinical attachments in psychiatry seemed to have had a particularly negative effect in terms of recruiting students to the specialty.

The influence of role models seemed not to be particularly strong. As with the situation before medical school, several interviewees could not identify particular individuals that might have positively influenced their career choice. There was acknowledgement that dynamic and interesting lecturers could bring some subjects to life. However, students were able to separate the performance of individuals they met from the innate interest that they could engender through their teaching and example in certain subject areas. There was little evidence of powerful figures shaping impressionable lives. Students often acquired their most useful career related information through informal discussions with peers and acquaintances in particular specialties. Reasons for choosing specialties during undergraduate years closely matched those given for choosing medicine before going to medical school. The broad areas of academic understanding, usefulness to society and the influence of others were identified by interviewees as important both in their teenage years and as undergraduates. Interestingly, financial security emerged for the first time as the realities of modern lifestyles began to impinge on career decision

making processes. Pay rates of specific specialties were mentioned and thought to be important considerations.

Although a few students had a clear idea of their intended career path by the time they qualified, the majority had not made up their minds. Even in their foundation year 1 there was evidence of many doctors changing their career path from that they had decided as undergraduates. Some required later experience to confirm that their early undergraduate experience had been as compelling as they first believed. Others needed to sample other specialties that had not been covered as undergraduates in order to feel that they had had reasonable exposure to the complete pallet of potential occupations. Some had been influenced by groups, or individuals, they had encountered as senior students and junior doctors. However, most said they were undecided and referred to having two or more options in mind, albeit, usually, with one preference being expressed. Some even spoke of being confused.

A number of key observations emerged from doctors working in hospitals during foundation year 1 Although students are spending increasing amounts of their training time in general practice as undergraduates, their primary care clinical experience is still far less than their secondary care clinical experience on attachments within their teaching hospitals. Several doctors referred to the excitement and immediacy of acute medicine during their first year in clinical practice. They derived considerable satisfaction from learning to cope with stressful and demanding situations in hospital, and were keen to improve their skills further. One contrasted the speed of hospital medicine with the daily frustration of getting simple things, such as blood tests and chest X-rays, performed in general practice settings.

Others did not enjoy the acute experience that much. They found hospitals to be large institutions with intense working schedules. Relationships between team members could often be fraught with difficulties. Accessing advice when needed could also prove problematic. For a few, the experience of working in hospitals during foundation year 1 determined that they would not work in hospitals in later life.

Experience in Accident and Emergency was commonplace. Again some found the immediacy of the specialty rewarding and were motivated towards A&E as a career.

Others, however, found it frustrating to work within the waiting time limits implemented by managers, and disliked the antisocial working of shift systems.

In terms of teamwork, hospital teams seemed to meet most young doctors' expectations. Teams were highly structured and could be made up of a large number of individuals. Clinical decision making was shared among team members with the most inexperienced rarely being left to make important decisions on their own. Teaching and learning in hospitals were referred to as 'self learning' and 'learning by osmosis' by some, although others also found the pedagogic influence of particular registrars or consultants helpful.

All those interviewed had experience of general practice attachments during their undergraduate training. While some had only one or two brief attachments, several described attachments throughout all their clinical years, and even in their initial years of study. The value of the attachments varied considerably. The majority found their time in practices enjoyable. In the early undergraduate years there was little direct consulting with patients in primary care settings, and this generally lessened the perceived value of the experience. In some instances the first attachment was not very successful, whereas the second one seemed more enjoyable with more of an impact in terms of learning clinical medicine being reported. It appeared as though some medical students had to take time to become familiar with working patterns in general practice before they could actually gain academically and holistically from their attachments. Initial impressions seem very important and it may be that some students are simply so overwhelmed by differences in organisational structures of general practice that they fail to benefit as they should from their first experience. A case could be made for first time practice attachments to be in practices that are specifically skilled at inducting medical students.

The need for highly functional and supportive practices was emphasized by several interviewees. Those unfortunate enough to have negative experiences in their practice attachments tended to question their choice of medicine as a career rather than comment on any effect it may have had on specialty choice.

The influence of the attachments on choosing a career in general practice was neither obvious nor generalisable. Those who already wanted to be general practitioners tended

to report favourably on their experiences, as did those with a clear intention to pursue another specialty. This latter group recognized the value of early postgraduate general practice attachments in terms of general medical education and their future roles as specialists. Some spoke of the difficulty of working in inner city practices and the new insights they gained into the working lives of general practitioners during their undergraduate attachments. For a small number of students, undergraduate attachments generated interests in general practice which had not existed previously. The reasons for this are unclear and worthy of further investigation.

9.4 Foundation year 2 experience

GP activities

Compulsory versus voluntary F2

Understanding role of GPs

Making own decisions

GPs with special interests

Continuity of care

Challenging medicine

Limited on call

Service demands

Practice environment

Suitable for training

Treated as equal

Friendliness in practice

Social isolation

Work ethic

Teaching and learning

Quality of induction

Quality and timing of supervision

Quality of feedback (including video)

One to one training

Observing different doctors

Informal learning in GP

Role of formal teaching

Informal training through discussion and observation

Styles of consulting

9.4.1 GP activities

F2 GP compulsory versus voluntary

Interviewees were divided on whether foundation training in general practice should be compulsory or voluntary. The majority of comments were supportive of a universal general practice experience sometime during foundation training. It was recognised that there was much to be gained from having a more profound understanding of general practice, including the need for excellent discharge letters. However it was thought by some that there was little to be gained by compelling specialists to undertake a general practice attachment when they were anxious to press on with their development in their chosen field. Several also mentioned financial penalties in general practice because of the reduced on call commitment and associated loss of pay as a negative aspect of the foundation general practice experience.

No I don't think it should be compulsory, I think it probably should be encouraged but not compulsory, because if somebody's genuinely really not interested in it they're not going to enjoy it and they're not going to be any good at it and that's no good for patients. (Female, year 2)

I think all doctors in training need to have an understanding of primary care and how it interacts with secondary care. It's all very well being in secondary care, taking referrals and sending discharge summaries advising them on a patient's long term management, but actually experiencing the job of a GP and how the whole practice works would definitely be a benefit all doctors in training. (Female, year 2)

I do, I think it is really useful because I think hospital doctors are really quick to judge GPs without actually having sat in that chair and tried to work out what they are going to do with the patient in front of you; and I think everyone would benefit from sitting in that chair. (Female, year 2)

Even if it wasn't a career choice, it certainly was an eye opener in terms of what general practice is all about, and whether someone wants to go into general practice or not in [the] future, it is good to see that field out there that is different to the hospital. (Male, year 1)

Sangeeta

Sangeeta was interviewed towards the end of her second foundation year. She was attached to an opthalmology unit at the time. She came from a family in which three of her siblings were doctors. She was good at biology and interested in the human body. She felt these attributes sufficient justification to study medicine. By the end of the first year of her studies she was convinced that she had made the right choice.

Her initial attachment to general practice during the third year of her course was unsuccessful. She felt that she was unprepared for the placement with too many gaps in her clinical knowledge and insufficient general experience. In addition her practice had not had medical students attached previously and she felt the educational environment might have been more positive. As a result she did not consider general practice as a career and simply wanted to finish the module as quickly as possible. She did wonder at the time whether she would have gained more though a general practice attachment in her final year.

She initially considered choosing cardiology as a specialty but was put off doing so by a four week firm in her third year. She later become interested in ophthalmology and completed a three month post as a pre-registration house officer in the specialty. Her foundation year 2 included four months general practice. Her view of general practice was completely transformed by this experience. She felt she was 'really touching peoples' lives'. She enjoyed the close and continuing contact with people. She enjoyed thinking on her feet and sifting through the myriad of problems that patients can present with. She felt valued and supported in her training practice. She gained a deep respect for those working in the community. She suggested that junior doctors at the outset of their careers should undertake a foundation attachment in general practice if only to make them more aware of what goes on outside hospitals. She felt that consultants and other senior doctors had a much better idea of the contribution of their general practice colleagues to the health system overall.

Interview Career Choice: General Practice

Sci 59 positions: General Practice Before 38th After 4th

Understanding role of GP

Foundation doctors considerably modified their views of general practice as a result of their F2 attachment. For several it brought a new understanding as to how individuals, and their families, manage illness in their everyday lives. Several commented on the pivotal role of the general practitioner within local communities. They understood more about managing chronic illnesses and taking account of associated social and occupational factors. They learned of the importance of effective communication and of the need to establish rapport. They recognised that decisions relating to diagnosis and treatment of disease did not always need to be made during one consultation and that it was possible, and helpful, to review patients far more regularly than in hospital. Many remarked that the experience generally improved their understanding of the complexity and subtly of the role of general practitioners.

…when a patient came with a complaint sometimes, there is a possibility it is not the main complaint he has come with. Once he has developed a rapport, if he feels comfortable, he would come out with his real complaint. (Female, year 1)

main thing I learnt in general practice is that you don't need to give someone an answer straight away and you don't need to give someone a medicine straight away, it is okay to hold off for 24 hours and see someone again. (Male, year 2)

I really felt I was touching peoples' lives. I really enjoyed when I sat there in that room with a patient and they put their faith on you and you try to help them, you see them again, you see how whatever you helped them with made a difference. GPs have to fish through all of these … problems to get to the real root of whether its medical, social or psychological and I think, in a way, it really reinforced my respect to general practice and primary care in general (Female, year 2)

Making own decisions

There was recognition that clinical decision making in general practice was different from that occurring in hospital environments. There was far less sense of shared approaches and a greater emphasis on individual responsibilities. Making initial diagnoses was quickly seen as a key component of family medicine. Several found the transition from large teams in hospitals to consulting on their own in general practice particularly difficult in terms of decision making. They felt ill equipped to make decisions without the immediate support of more experienced clinicians. In addition

decisions were often made in relative isolation compared to those made within hospital teams.

I found it difficult in terms of decision making. Whether to refer or not to refer, to send home or to admit or not to admit… the decisions were clinical and there's not much investigative support. (Female, year 1)

The main difference was when I was working in the hospital, I was always given a diagnosis either by the general practitioner or by the A&E doctor… in GP it was my first contact with the patients, I was the one who has to make it, who has to give the patient a diagnosis, at least a question mark diagnosis. (Male, year 2)

I was a lot more geared towards working as a team before, and now I'm able to go off and do my thing. (Female, year 2)

General practitioners with special interests

A number of doctors thought careers in general practice might be enhanced if they also had a specialist role within their primary care settings. The advantages of such arrangements in terms of training were evident from the comments reported in interviews. Interviewees also thought that having doctors with particular skills and knowledge within a general practice would be helpful, and could compensate for their own lack of professional development in that area.

Actually what made GP post more attractive for me is GP with special interest. (Female, year 1)

I had the possibility of doing something in GP with specialist in surgery, my supervisor used to do a vasectomy once a week and the other GP would do an endoscopy in the hospital. I thought I could be GP as well and do a bit of surgery as well. (Male, year 1)

One of the partners had an interest in dermatology so if I had a problem about that I would go to him and there was one with an ophthalmology interest… so it was good in that way. (Female, year 1)

Continuity of care

Ongoing relationships were often mentioned as important aspects of working as a general practitioner. Some saw themselves fitting better into clinical relationships that were ongoing and not confined to discrete events. A few interviewees demonstrated some deeper awareness of the significance of these continuing relationships.

For me personally communicating with patients and getting an ongoing relationship with patients instead of seeing them once and throwing them out the door… is very important. (Female, year 1)

I didn't have a lot of experience with chronic problems as such. In the hospital environment, as a house officer, you're more of a doer than a thinker about things. You would just get on with your list of jobs for the day. Whereas, in the general practice environment, I had a bit of time to get to know people and it was quite nice to be able see them and help them a bit and the effect of just a bit of improvement. (Female, pilot study)

Challenging medicine

Uncertainty in clinical management was often recorded by doctors during their general practice attachment. The ability to identify significant illness among the large number of patients with mild or self limiting problems was seen as very important, even if somewhat elusive, aspect of clinical practice. Interviewees were conscious of pressures from patients to produce clear answers when it was not always possible for them to do so. They learned to look for hidden agendas and not always to take presentations at face value. They developed strategies to handle uncertainty, including sharing their doubts with patients.

I really like that the fact that you know some people come in and they're really not looking very good; and at the same time a perfectly healthy person will come in thinking they're about to die. (Female, pilot study)

[It is] difficult to not have answers all the time. Which is again different to a hospital…you just bluff your way through something and then do some blood tests, get an x-ray and then go back to it when you've had a think about things and looked them up. If you've got somebody sitting in front of you and they're going 'this is my problem, what will you do about it?' … It's a bit more pressure on the moment. It's quite a challenge sometimes for the answer or being able to say I don't know. (Female, pilot study)

it is always difficult to actually find out what is going on in 10 or 15 minutes… they'd turn things around and you'd sort of realise this patient sort of had another agenda (Male, pilot study)

Carol

Carol was interviewed towards the end of her foundation year 2 during a medical attachment. She first thought of studying medicine when she was completing her A levels. She had wanted to pursue academic study initially but was aware of people who had undertaken conversion courses from arts to medicine. She studied classics as her first degree and then enrolled in medical school. She decided early on in her undergraduate training that she preferred the 'buzz' of hospital to working in general practice. She enjoyed the excitement and challenge of hospital medicine and greatly valued working within teams. She found her undergraduate attachments in general practice provided her with more understanding of patients' backgrounds. This helped her in her management of them when they became acutely unwell.

She enjoyed her four month attachment during foundation year 2. She was impressed at the clinical acumen of her supervisor and the doctors with whom she practised. She understood that general practitioners work with considerable uncertainty. She felt there was more teaching time devoted to her as an individual than in hospital and that she was treated as an equal. She thought the emphasis on communication helped her to better manage patients when she returned to hospital practice. She thought this completely dispelled the 'horrible image' of general practitioners, evident among her peers, being 'lazy' and 'not doing everything they need to'.

Her attachment did not change her mind in terms of career choice. She did think that it might be a good idea for all doctors to experience some postgraduate time in general practice. However, she felt this would be perceived as a waste of time for many early career specialists. She also thought that the financial penalty of becoming 'unbanded' would put a lot of doctors off foundation training that included four months in general practice.

Interview Career Choice: General Medicine

Sci 59 positions:	General Medicine	Before 5th	After 7th
	General Practice	Before 31st	After 34th

<u>Limited on call and service demands</u>

These two have been amalgamated because of overlap in responses. In general the interviewees found the working pattern of general practice preferable, especially in

terms of on call, to their previous hospital posts. There was, however, recognition that their training status resulted in a lighter workload than they were likely to experience as unrestricted practitioners.

compared to A and E it was just sort of wonderful having the pressure off and sitting in a nice office and… having 20 minutes to see each patient is good, because a lot of them were just quite minor things … so it gave you a chance to look things up. (Female, pilot study)

I had 15 minute appointments…. twice the length of the partners in practice which suited me because sometimes it would take no time at all for something very small but sometimes it would take me much longer to sort things out. I managed to stick roughly to time. There was no pressure from anyone to hurry up and get a move on. It was good. (Female, pilot study)

9.4.2 Practice environment

Suitable for Learning

There was broad agreement that most practices provided protected time for learning as well as appropriate exposure to the range of conditions usually encountered in general practice. The focus tended to be on learning rather than working. Reports of the general practice working environment being ‘unfamiliar’ or ‘scary’ were interesting findings and did tend to impact adversely on initial learning in a few cases. However, this was generally more than compensated for by good training support within experienced training practices. In terms of skills and knowledge some foundation doctors felt more exposed than they had been in hospital where another team member simply took over if they expressed uncertainty about a particular condition or presentation. In general practice there was no such fall back situation, and doctors needed to become more confident and competent, largely by using their own learning strategies.

I suppose there are two sides of it, so practising different ways in consultation with patients and learning what works with different people and then also just a huge amount of practical knowledge because there were so many presentations that I’d just never seen before. (Female, year 2)

I think it can be quite scary in a new environment like that, I think if it was somewhere I was more familiar with like a hospital, then it would be better, but towards the end when I was more comfortable with dealing with things, it was better that way, but at the beginning I think I would have preferred a bit more didactic teaching. (Female, year 1)

I think it is clearer in your deficiencies of knowledge, I think in secondary care the way that it works is that, if there is something complicated or you don't know what is going on, the patients either go on to been seen by your senior who then looks at it, or in A&E you bring in a consultant or registrar who takes over and says do this or this, whereas in primary care the patient is sitting in front of you and asks you a question, and if you don't know the answer, you have to deal with it there and then. (Female, year 1)

Treated as equals

For some foundation doctors the experience of being treated as equals left a lasting impression and enabled them to access other educational activities. There was little in the way of hierarchical structures in practices and the informality encouraged inexperienced doctors to ask their more experienced colleagues for advice. This form of informal learning had also been reported within hospital teams but was less consistently present than in general practice.

[They] treated me more as an equal, so I could go to them whenever I wanted and they would just kind of always be there. In hospital it's a little more you know, a bit more rushed, you've got to pick up what you can when you can and grab people, really catch the teaching opportunity when you can you've really got to be running around chasing opportunities much more. (Female, year 2)

I felt I got a lot more teaching because of that, because I wasn't made to feel at all that I was very junior and they were very senior, it was very kind of informal and everyone was happy for me to ask questions… it felt much friendlier in a way. (Female, year 2)

Friendliness in practice

There were many positive comments about the friendliness of the training practices. Relationships within general practice teams were mainly excellent. Hospital clinicians were seen as more stressed and working under more pressure than their general practice contemporaries. In turn, several foundation doctors thought the practice environments much less stressful than hospital and felt this enhanced their ability to learn from their clinical attachments.

I've never experienced that before actually, everybody was very nice, very friendly and everybody got on with each other, which I was very surprised with, because in hospitals that never happens. (Female, year 2))

…friendly atmosphere. I felt I learnt a lot more than [in] hospital medicine. The GPs gave us more time and saw a mixture of patients and I felt the experience was more enjoyable. (Female, year 1))

Everyone was much kinder and more open and I think it had something to do with the fact that everyone is stressed in hospital, and in general practice no-one was snapping, which is common in hospital; overworked, too much pressure, I don't know what it is. (Female, year 1)

Social isolation

This was an interesting finding among several doctors. While the practices were very friendly, the experience of being a young foundation doctor could be quite isolating in professional and social terms. To some extent this may have related to the early development phase of foundation training and a lack of preparedness among some practices. However, other factors attributable more to the needs of some individuals rather the environment they were in may have played an important role in generating these feelings. Some had found that large hospital teams provided a social as well as professional network that was not as obvious when they moved to general practice. In addition the workload of general practice was such that doctors spent several hours in their consultation rooms or in front of computer screens each day. This reduced the time available for informal and spontaneous exchange outside the confines of a consulting room or away from a computer screen.

I was seeing patients on my own quite a lot so he let me see patients on my own. What was very different was that I noticed that you were on your own a lot compared to hospital medicine, so it was quite a lot sometimes and it was quite lonely as well. (Female, year 2)

I think the slightly odd thing about a GP practice, compared to being in hospital, is that everyone works in their own little rooms and is their own independent practitioner; but there isn't as much contact between people. (Male, year 2)

I found what I missed most was the team atmosphere, and so I found it quite isolating to sit by myself in a room and having patients trotting in and out all morning or afternoon. I really missed having nurses and other doctors and other auxiliary staff around, in direct contact and I didn't realise that it was quite so important to me as I now realise it to be. (Female, year 1)

Work ethic

There was greater appreciation of the role and working patterns after foundation experience. Interviewees were surprised at how hard general practitioners worked and how demanding general practice could be. They recognised that there was limited access to investigations hospital doctors took for granted and that general practitioners went to considerable lengths to keep people out of hospital. Some saw the potential to develop a broad range of interests from a general practice base. Their opinion of general practitioners as hard working practitioners was generally enhanced by their attachment in foundation year 2. For some, however, the workload appeared to be a powerful disincentive.

That GPs are good….that you know it is easy in hospital with easy access to investigations…but it's a really difficult job actually, the uncertainty and so on. (Female, year 2)

I realised it's a lot harder, I worked more hours in general practice than I did when I was in hospital, it's a lot more regimented than I thought it was …there's a lot more work involved than I thought there would be. (Female, year 2)

General practice is a much harder job than everyone in hospital thinks, so you shouldn't whinge about GPs. (Female, year 2)

I've got a huge appreciation of what they do and also, that's the other thing, I'd never realised before I started how hard GPs try to keep people out of hospital and how hard they try to sort of manage things in the community and pull in support from you know, all the other places you can get support from and the access that they have to support and things, I'd just assumed that if you have a sick patient you know they got sent in, but actually so many patients were managed in the community that I thought would have been in hospital. (Female, year 2)

9.4.3 Teaching and learning

Quality of induction

In general the foundation training practices provided very good induction programmes for new doctors. There were a few minor problems in the pilot phase but these appeared to have receded in later cohorts. Foundation doctors were introduced to a variety of attached and employed staff. A considerable mount of time was devoted to familiarisation with computer systems. Their timetables were generally pre-arranged for

the first two weeks and then tailored to their needs over the next two. They would generally observe others consulting initially and then start consulting themselves with 20 minute appointments. They would discuss their findings with their supervisor. Readiness to consult with patients was individually determined.

It was very well organised actually, I had a proper time table, it entailed time working in the reception answering the phones and sitting in with the different GPs. I also spent time shadowing other members of the team such as practice nurses, district nurses and the dietician. (Female, year 2)

From my personal experience I would have liked a proper induction and a bit more sort of formal teaching. (Female, pilot study)

I spent two sessions with each of the four GPs basically and obviously went out and did a few home visits with the district nurses and we had some sessions on how to use the computer and what to do if the computer doesn't work and who to call and things, and went round to one of the partner's houses and had dinner one evening. It was very nice, it was quite an easy induction really. There wasn't too much pressure to pick things up too quickly. (Male, year 2)

they weren't really very aware of what it is that I was expected to do, and I felt that in the first couple of weeks, I felt a little bit out of place and that they didn't really know what to do with me, but after that it was absolutely fine and I think perhaps a little bit more preparation of the practices for our presence would be nice, but in the end it was absolutely fine. (Female, year 2)

Quality and timing of supervision

Supervision was generally felt to be reasonably structured. It was particularly effective when supervisors were highly respected by their trainees. A few interviewees felt that their own aspirations in career terms were not understood by their supervisors. Those whose prime career aim was other than general practice reported less benefit from their attachment and attributed this, in part, to the approaches taken by supervisors more familiar with career GP trainees. One interviewee had a very dysfunctional relationship with a supervisor that left a lasting negative impression.

There were concerns about the effectiveness and lack of discrimination of the workplace based assessment tools (mini-CEX, CbD and COTs) used by supervisors. The instruments were spoken of in broadly negative terms. Some foundation doctors felt that lack of recognition when they had made specific efforts to improve their medicine

was a de-motivating factor. They thought supervisors unnecessarily distracted by trivial paperwork.

this doctor was great, especially as my supervisor, he was a young dynamic doctor who'd made the choice to go into GP but he was just really good at it, he was you know a really good doctor and he would do everything acutely as necessary, but he also was really good at communicating and giving people time, so that was nice. (Female, year 2)

A lot of it was just repetitive and I must be honest it was quite boring; because I'd done a lot of the stuff before, which I don't think my supervisor realised. I think that the supervisors have to realise that everybody is different, all FY2s are different and I know the two girls before me, you know they wanted to do general practice, whereas I was you know very different, because I didn't want to do it but I still wanted to work hard and give it 110% like any other job I would do. I think my supervisor needed more insight into what I really wanted, you know my career. (Female, year 2)

I don't get any credit for actually doing things that will make me a better doctor, all I have to do is get these random sheets of paper signed of, and these sheets of paper are a trivial joke. I think that's the worst, I think that I for one could have done with some more motivation to drive myself harder and I think I see many of my colleagues who are even more of that position and who have just become quite lackadaisical. (Male, year 2)

I was with somebody I didn't get on, didn't support me at all and continued to put me down. I complained several times and it got to the point one weekend I couldn't sleep, eat, I couldn't stop crying. (Female, pilot study)

<u>Quality of feedback (including videos)</u>

Feedback was seen as a prominent aspect of foundation training by most interviewees. It was reported as much more developed in general practice than hospital settings. More time was specifically set aside for feedback to take place. Some feedback occurred in structured sessions, including tutorials, video consultation reviews and work place based assessments, whilst others took place during routine working times on a spontaneous basis. Whilst broadly welcomed by foundation doctors, several found reviewing their consultations by video an uncomfortable experience. Although the quality of feedback was generally very high there were some negative experiences. The volume and intensity of feedback was variable among practices. Several interviewees had little or no feedback whilst others had reviews on a daily basis. Not all feedback was delivered skilfully and was perceived by some as not constructive. There appeared to be little consistency across different practices.

If he didn't give you good and bad feedback or positive and negative feedback in the course of a session I think he'd failed in something, he was always very keen on that. (Male, year 2)

[I had] much more focussed feedback. I don't know if that's because people have got a bit more time in general practice, or if you have an ongoing relationship with people so that you can find the time when there's more time, but in hospitals it tends to be very sort of rushed actually, especially in terms of those paper assessments and they tend to be filled in without a great deal of thought really, rather than sitting down and actually doing them properly, which is what I found suddenly I was having to do in general practice. (Female, year 2)

Every now and then one of the GP's would come up to me and say, you know that lady who came to you with funny aches and pains and you decided to do a blood test, well she's got multiple myeloma and she's be telling me for years that she's had funny aches and pains and I'd been ignoring her, that sort of thing. (Female, year 1)

<u>One to one training</u>

The relationship between trainer and trainee was seen as a distinct strength in the general practice attachment during foundation year 2. In general doctors had not encountered this form of pastoral care in their hospital appointments. The closeness engendered trust and created confidence among those new to family practice. Interviewees felt that their trainers were interested in them as a person rather than in a role. Several reported that this enhanced the learning experience and enabled them to answer questions more readily than they had been able to do in their hospital posts.

1-1 relationship with your trainer, whereas in hospital it is very easy to get lost in the numbers – you have 5 min appointment every 4 months to check your progress, it was far more personal and as a result I think you learn a lot more. (Female, year 1)

In hospital you just get thrown into the deep end of the ocean and do what you can, and you can't get hold of anyone to discuss something and that was quite good; because if you leave something to discuss later, which is what happens in hospitals, you never get around to it; whereas here I found it quite useful that I had one to one training on demand whenever I wanted. (Female, year 1)

I thought that was helpful because it was one to one teaching and I did not feel shy or intimidated and I could ask anything and it was clear that anything I had a problem with or not sure about; I actually learnt a lot from our joint sessions as well. (Female, year 1)

Observing different doctors

Nearly all interviewees had directly observed other doctors in the practice either as part of their induction programme or during the course of their four month attachment. Most comments related to the approaches and demeanour of the doctors and not their clinical acumen. The experience of observing different doctors broadly helped trainees in both professional and career terms. Some doctors were seen as role models with attributes such as personal organisation being particularly admired. Interviewees used periods of direct observation of other doctors to gain insight into a future career path for themselves.

you can kind of tell the difference between younger doctors compared to older doctors in their 50s and 60s that have obviously been GPs for 30 or so years, just how, not in a bad way… their patients adore them, but I thought it was more of a relationship with the patient and a bit more give and take, whereas they are a bit more god like. (Male, year 2)

I really admire a couple of the female ladies who can juggle everything and they are so organised to minor details, how they do things and how you know their educational sessions well in advance, they know what courses they are going to do, at the same time they know where they are going on holiday and prepare and sort out their life as well and juggle the whole thing and they seem to be on top of things. (Female, year 2)

Yes, very good, I got on with my trainer we sort of hit it off immediately. It sounds awful but there were quite a few stereo types in the practices, the geeky IT expert, and the cynical old hand. (Female, year 1)

Informal learning in general practice

This was seen as a very important component of the foundation attachment in general practice by nearly all those interviewed. Informal learning took place during consulting, immediately after consulting and during regular tutorials. Interviewees reported learning from patients, supervisors, other doctors, the internet, books and in discussion with a range of other people at their practices. Some were clearly experienced self-directed learners. Most appreciated the availability of skilled practitioners in order to answer some of the questions that arose on a daily basis in their working environment.

The formal teaching sessions I talked about were very good, but I think I learnt even more from just talking to my GP tutor about particular patients. If I wasn't really sure I was making the right decision about diagnosis or management, then I would discuss a

patient with him. Often he would come in and see the patient himself before advising me; then when the patient had gone, he would explain why he had made certain decisions. (Female, year 2)

I would jot down at the end of each session one or two things and sometimes there would be more than that, the patients I had found difficult to manage; but I would limit it to one or two in the morning session and I would sit down in the afternoon gap after I'd done any home visits or had lunch or whatever; and I would sit down with the internet and go through either a module on BMJ learning or look up on GP notebook or just look up in a textbook. I found that reflective learning, discussing cases I found very useful. (Male, year 2)

I would call in one of the partners to see something or I would make a note of the name and discuss it afterwards or I would be given an answer or pointed in the right direction to find out myself, I used the internet a lot, even during consultations, I don't know if you are familiar with GPnotebook.co.uk – but that is a very comprehensive site with quite authoritative information for stuff that I hadn't come across before. (Female, year 1)

Role of formal teaching in foundation year 2

The quality of formal teaching in foundation year 2 was variable. Formal sessions generally occurred on a weekly basis and were available to all foundation doctors. In general interviewees rated their educational experience of the formal foundation year 2 training less highly than the structured learning that took place within their practices. Programmes delivered using a combination of didactic subject based teaching and interactive case based review seemed to be rated most highly. In the earlier cohorts some teaching was not formalized or organized well. Speakers sometimes did not turn up and those who stood in for them often talked on subjects that were of no interest to attendees. Improvements, however, had definitely been noted in the subsequent year.

It started off very well, they taught us lots of really useful things, scenarios and things like that, and then it sort of…towards the middle and near the end it petered out and it just became a case of literally…because we were supposed to have teaching we needed to be there but we weren't actually….a lot of the doctors who were supposed to teach us didn't show up so we would get stand-ins to come in and talk to us about something completely random and it wasn't that useful for us at that point. (Female, year 2)

they would start off with that teaching that was structured about paediatric problems, dermatological problems, gynae, covering the ground that they knew everyone wanted covered, and then after the first month, 6 weeks or so, they sort of took a slightly more hands off approach and said right, we've covered the stuff that we think you want to know, tell us now what you are struggling with, let us know what you want to talk about. One of them sort of focussed quite a lot on communication skills and ways to run a

consultation and so on, actually it had been thought out quite well. Actually I thought it worked very well. (Male, year 2)

There was foundation year teaching, which was every other week all afternoon with different subjects not necessarily relevant to general practice, and then the teaching I had with them, they have the monthly afternoon teaching at the practice where the practice closes on a Wednesday afternoon and we sit down and discuss different subjects, quite interesting a well, kind of….guidelines or what we are going to do about the new GFR blood tests, very much practical and very useful. (Female, year 2)

Informal training through discussion and observation

Most of those interviewed reported positively on informal discussions they had with their trainers and other doctors in the practice. These could take place either during periods when they were observing other doctors, following consultations with patients and in tutorials. Considerable value was attached to reflecting on recent clinical encounters with a more experienced practitioner. Linking pathological processes with observed scenarios was regarded widely as an optimal learning method. Interviewees provided specific examples, without prompting, of instances where learning had taken place through discussion and observation.

…at the end of each session we would go through each and every patient, which I found very useful. I found that more useful than sitting down and discussing the management of hypertension, as you could discuss issues very particular to the patient. You had a diabetic and blind patient who was 97 and falls over all the time versus the 52 year old [with] borderline hypertension or something, so I found that there were obviously common things. (Male, year 2)

I had a tutorial once a week with my supervisor for an hour. Other than that I was doing case reviews. Every single case that I saw, I had to make a log in my diary and after morning surgery at coffee time, we would meet to discuss everything; and I had to say what I did with this one and why and discuss it and similarly after the evening surgery and sometimes I actually left the consultation then and there and went out to discuss the case with another doctor if I wasn't sure what to do with it. (Female, year 1)

I sat in with the GP who was my supervisor for about 3 weeks or so and found [an] increasing number of patients I was seeing whilst he was there over the 3 weeks until we were sort of doing every other patient, and then after that I started running clinics by myself, and would show him any patients that I had problems with, you know we'd talk over it at the end of the day…..but it was great. (Male, year 2)

Styles of consulting

Interviewees found consulting styles and patterns quite different from their hospital experience. They regarded patients at the practice much more as people in their own right rather than people with challenging medical conditions. They understood the relevance of individual patient health beliefs and attitudes to the management of the presenting problem. They could recollect instances where they appreciated what style of consulting worked for individual patients – and what did not. They realised that different doctors had different approaches to consultations and commented on the impact this had on the kind of patients who consulted them. They learned to tailor their approaches to each individual and employed a range of techniques to achieve good outcomes.

had a girl come in with a sore throat, the throat was red, no pus, and I basically reassured her and she was wiping her eyes and I didn't twig that she was crying and I lost eye contact with her and the rapport was completely gone, reassuring her and saying come back in a few days if its not better or if its getting worse, she started crying even more. At which point I realised she just wanted to be told it's ok to be feeling really sick and that she really wasn't feeling really well, and I just misjudged the level of that consultation. (Female, year 1)

I used to get quite upset about that, someone would burst into tears in the clinic and oh God what have I done have I said something, and I think I sort of learnt to live with that, so, it is difficult to say because you can't look at yourself very clearly to see how your consultation style has changed. (Male, year 2)

[There was] much more about thinking what was going on with the patient, what their ideas and attitudes were, I think that was the main thing I picked up, but that translates into hospital now as well I think. (Male, year 2)

9.4.4 Summary of influences during foundation year 2 general practice attachments

The foundation year 2 experience attracted considerable comment. Several doctors gained more confidence in managing common chronic illnesses, and rarer acute ones, in general practice settings. They quickly understood that, in contrast to working in hospitals, not all problems had to be solved straight away. The facility to bring patients back for review was seen as a definite benefit of working in primary care. Continuity of care and knowing patients better engendered positive comment about practising family

medicine. Foundation doctors also learned to appreciate that problems patients presented with might not be the ones they really wanted to explore. Some doctors did not realize the pivotal role general practitioners played in local communities and the extent to which they influenced everyday family life, until their general practice attachment in foundation year 2.

There was recognition that clinical decisions in general practice were often made alone, as opposed to teams within hospitals, and that there was little in the way of investigative support. Handling uncertainty in clinical situations and working to time constraints were two aspects frequently identified as challenging in general practice. Several did, however, cite improvements in terms of lack of on call and better work life balance. A number had positive experiences of working with general practitioners with special interests in their attachments and felt that combining specialist interest with general practice would be an attractive proposition in their future working lives.

Learning environments of practices were widely praised by interviewees. The friendliness of practices was perhaps the most outstanding feature of general practice attachments during foundation year 2. Very good relationships were generally reported among partners and staff at practices selected for foundation training and this was often contrasted with the situation in hospitals. Young doctors were treated as equals by their more experienced colleagues and were made welcome. Interviewees felt this enhanced both the educational effectiveness and general enjoyment of their attachment. Some, however, did report feeling isolated in terms of social and professional support. Although advice from supervisors was more accessible than in hospital, much of the clinical time of foundation doctors was spent consulting alone with patients. A few missed the team approach to decision making and found the whole experience quite isolating.

Perhaps the greatest change during the four month attachment was the enhanced appreciation of general practice as a demanding occupation. The efforts by general practitioners to keep patients out of hospital surprised many foundation doctors. Family doctors were seen to be important people in local communities mainly because of their ready availability to patients. They were also regarded as hard working by their foundation doctors whose preconceptions in this regard were generally dispelled.

Detailed accounts of experiences within foundation training practices were readily provided by interviewees. Initial problems in the pilot phase of programmes were predominantly organizational. By year 2 of the study induction was standardized across the Deanery with doctors' first two weeks in practice being structured in a similar way to programmes set for general practice registrars. In general foundation doctors shadowed other team members and sat in with different health care professionals for the first few weeks. They answered phone enquiries and accompanied other doctors on home visits. They were familiarised with practice computer systems and spent some time with office staff learning about operational aspects of general practice. Foundation doctors only consulted on their own when they felt ready to do so and their supervisor was in agreement.

The quality of supervision and one to one teaching was commented on by several doctors. The personal nature of teaching relationships with specified trainers was deemed very helpful, as was ready access to trainers compared to the situation in hospitals. Feedback was a powerful feature of general practice attachments in foundation year 2. For some it was of a vague and more generalized nature whereas for others it was detailed and quite specific. This was an unfamiliar situation for doctors whose previous experience of feedback whilst in hospital practice was usually described as 'rushed'. Most doctors felt reassured by the feedback they received but occasionally individuals could be very demoralized by negative messages. There was general lack of confidence in the assessment tools employed during foundation attachments with the feeling that they failed to discriminate in any meaningful way between trainees. However considerable value was placed on the views of experienced teachers and the benefit of having such close teaching relationships with them.

Observing other general practitioners in their daily practice proved very useful to foundation doctors during their general practice attachments. Not only did they witness differing styles of consulting but they saw first hand what it was like to be a general practitioner in the United Kingdom. They learned about varying methods of communicating with patients as well as the individual working practices of a range of practitioners. Most attempted to identify closely with the type of doctor they most admired during their periods of observation.

Foundation doctors reported observing, and trying, differing styles of consulting and freely suggested how these might be applied in a variety of clinical situations. They learned to adapt consulting styles to individual patients and noted that they were not always successful in their efforts. They learned to focus more on the patient rather than the disease.

Most foundation doctors learned through informal discussion and observation. Some consulting sessions were shared with trainers. Each case would be discussed immediately after the patient had left the consulting room. In other instances cases would be saved for a weekly tutorial and discussed in detail. There was impromptu teaching with experienced practitioners in most practices as part of daily working life. While immediate answers were not always forthcoming from the trainers themselves foundation doctors were frequently pointed in an appropriate direction to find the relevant answers. They were encouraged to be self directed in their learning.

Formal teaching took place on a regular basis within the practices and as part of the broader foundation school programme. In general the weekly tutorials with supervisors were greatly valued, but the structured teaching through foundation year groups less so. Whilst covering some topics was deemed useful, much of the teaching was felt to be removed from daily practice. There is little doubt that this aspect of foundation training was not well developed at the time when foundation programmes were first introduced.

9.5 MTAS (Medical Training Application System)

Demoralisation
Geographic displacement
Working abroad
Medicine not a career for life
Unemployment
No control over career trajectory
Too early to choose

9.5.1 Demoralisation with MTAS

Demoralisation was widely reported at the time of the MTAS fiasco. At least two study participants left the country as a direct result of the new selection system. Others were seriously considering a career outside medicine. The interviews of the year 2 cohort in particular were peppered with evidence of demoralisation following the introduction of MTAS. There were criticisms of the on-line selection questions used to short list people for interviews. Many excellent doctors, with exemplary academic student records, were not short listed. The process was seen as very limiting for doctors: they could only apply for four specialties in one region, two specialties in two regions or one specialty in four regions. MTAS was seen as a means of meeting the manpower requirements of the nation with little or no attention to the aspirations of individual doctors. The system seemed to force people into career paths in areas of the country not of their choosing. Most applicants understood that not all doctors would be able to pursue the career of their choice in the region they preferred; but there was widespread resentment of the government's crude attempts to manipulate careers through MTAS. The new system would also be very inflexible for those wishing to change their training path after one or two years.

I think the problem with MTAS is that it really limited what you could do, I mean you could only apply you know, either 4 specialties in one place, or one specialty in 4 areas or 2 and 2 and it really….I mean for me what I wanted to do was radiology and my second choice was surgery, two highly competitive fields. I wanted to stay in London or near London…it is very difficult to get what you want and I think it not fair that they are trying to make doctors work in fields that they don't want to do, just because we're scared that we're not going to have a job next year or in 5 years time. (Female, year 2)

When we were at medical school we didn't hear about any of this, we assumed you passed your exams, you become a houseman and SHO, you do more exams, you climb up the ladder and you have almost a job for life, as long as obviously you are academically and clinically capable of doing it…it's almost trying to turn you into a machine. I understand why, we serve a purpose we serve the public and we do need to go where needs are, and there isn't enough money for us to – you know, you have to fight for the career you want…I wanted to go into general practice and for me it was a lot easier then my friends that wanted to go into medicine and surgery, and so many of my friends who were brilliant doctors and had brilliant CVs didn't even get an interview…. How can you trust a process in which your academic ability just doesn't matter. The [low] morale on the wards has just hit everyone. (Male, year 2)

Geographic displacement

Whilst the earlier system required flexibility in terms of geographic location during training, MTAS gave doctors very little time to plan the move to their next post. This was particularly problematic for those with families. The technical problems with MTAS, including servers crashing and data being lost, compounded the already tight timetabling for job application rounds.

I'm moving right up north to Darlington direction, which is what I wanted to do, my wife and I wanted to move up that way, but I only found out this week which hospital I would be working in, and so in terms of making plans for moving, you know, we've not been able to look at anywhere until now really. (Male, year 2)

I think generally people are moving around more, people are moving around the country more, people are just generally more flexible, but I think in medicine you should at least be able to compete for jobs. The trouble with the new system [is that] it leaves no room for error, so if you don't, if you haven't got a job now, there is only a month to go to scramble to find something. (Female, year 2)

Opted to work abroad

MTAS resulted in the emigration of some doctors, who would otherwise have worked in the UK, and disillusionment among many of those intending to work in the UK. Whether any further interviewees left the UK is difficult to determine. A late concession by the Government enabled those who had not been offered an interview for their first choice to have an interview and potentially be appointed. It is also difficult to establish whether those planning to leave the UK were doing so for reasons such as lifestyle choice, oversupply of doctors in the UK or other personal reasons.

Well…just, I mean, especially just watched MTAS happen and people are going to Australia who really don' want to leave the country. (Female, year 2)

I almost applied for jobs in Australia and New Zealand and left because I was so fed up with it. It certainly is one of those things that is very multi factorial. There is the MTAS process itself which is a complete shambles. I found it very upsetting that an employer feels its okay to treat their staff with such contempt. (Male, year 2)

People are going to start leaving the country. To be honest a lot of people are going to Australia from now. I don't know. If they're not going to get a job when they come back, a training post, they're not going to bother or they'll just go to other hospitals. (Female, pilot study)

Medicine is not a career for life

Although there was considerable resentment towards selection authorities surrounding MTAS, there was still a sense of realism about life-long careers in any walk of life. Most thought medicine was still a career for life, if the individual doctor wanted to remain in the profession, but that not everyone would achieve their preferred goal. Some recognised that medicine is a broad subject that offers great flexibility in terms of eventual careers.

If you get through medical school I think (a) you've got what it takes to be a doctor and (b) you've decided that it's worth a career for life. You work so hard to eventually achieve your final goal So many hours of my life have been put into my career. It's not something I could have done without determination and a real love of the job. (Female, year 2)

I think it is not the same… you don't have a job for life in a particular area and it won't necessarily be the job that you want, but as a career, I think you can have a career in it for life. (Male, year 2)

I think there are many people who are happy or would be happy to do lots of different things within medicine. The great thing about medicine is that it's so broad and so … .encompasses so much … .and within that I think there is the potential for it to be for life. (Female, year 2)

Unemployment

The prospect of unemployment had not loomed large in the minds of newly qualified doctors until MTAS; although interviewees were quite split on whether this would be an ongoing feature of a career in medicine. Medical unemployment was cited by a few interviewees as an issue of some concern. Several had very substantial loans from their time at university and were concerned at the long term impact on incomes of over supply of doctors in the UK. The government made arrangements after MTAS that mitigated potential unemployment among new UK medical graduates. Nevertheless it was an uncomfortable time for many doctors seeking training posts at the time of the study.

[For] people in the outside world it is actually easier for them to move from a job to a job, whereas with us we are so fixed and trained in one thing that for us to move from medicine to something else is quite a challenge. It's not really fair, I mean you are taking away doctors who want to work, it's not that we don't want to work, and you

know help people but we just don't want to do what other people want us to do, we want to do what we want to do.(Female, year 2)

Some people I know are just literally, at the moment, unemployed, haven't got a job, full stop, nothing, so you know that's pretty shocking for them. (Female, year 2)

I doubt that there'll be much unemployment. (Male, year 2)

No control over career trajectory

Being forced early on to compete for training posts with little opportunity to change at a later date was shocking for most interviewees. While it was acknowledged that careers have always, to an extent, been a matter of compromise and subject to the needs of the state, the directing of careers so soon after basic training, with so little chance of changing tack subsequently, was broadly deprecated.

I mean there are people who would be happy to be an SHO for a few years …with some point, they would hopefully progress. The idea of being told right from the start you're never going to get any higher, just going to do the scrap work around the wards and down in A&E seeing the patients, would be quite dispiriting. (Male, year 2)

I think its always been like that to a certain extent, but I think less now than before, in that previously if you wanted to go into a competitive area… if you didn't get into the area straight away, you could then gain experience and… try again, whereas with MMC it seems almost like you get[only] one or two shots at getting on. (Male, year 2)

I think you have to be realistic about what your career path of choice is, and …think about whether you've got the skills to get there, and think about the competition involved as well. (Female, year 2)

Too early to choose

Many foundation doctors regarded early choice as perhaps the least acceptable element of new career structuring. Not only did this restrict the possibility of later choices being made but the system was structured in a way (selecting ST grades in the first year of foundation training) that offered doctors few experiences of different specialties before they had to express their career preference.

I really don't know. I think whoever it is trying to make people choose much earlier … what sort of path they want to take, which might make things more straight forward, [assumes that] people don't change their minds on the way. the thing is of course people do, people are now choosing their first and second year attachments as students,

which is bit strange, and then after those they'll be choosing their STs, and if their first and second year attachments throw up something that they… haven't had an opportunity to do in those attachments, how are they ever going to get the opportunity of experiencing it before committing to an ST, which is officially … going to see them through to CCT and their future career. (Female, year 2)

[The] new system of training does seem to push people to make a decision about their career earlier than before and too early for some people. (Female, year 2)

There has to be an avenue for people to get out and to change their minds, and they are making us choose so early in our careers that a lot of people haven't even had the chance to try some of the things that they think they might want to try, let alone before they want to apply for a 7 year post in it, so I think they are making us chose too early, I think there is not enough flexibility in the system (Female, year 2)

9.5.2 Summary of influences of MTAS

The failure of the computerised matching system for specialist training was a remarkable event in the history of UK medical education. While not directly relevant to the aims of the study, it captured views and responses from several involved doctors in the year 2 cohort. Although selection systems for general practice were administered separately, and ran much more successfully, through regional assessment centres, the impact of failed allocations in the specialist sector was felt widely throughout the profession. There were several references to the most brilliant doctors not being able to secure specialist training positions. Some were seriously contemplating leaving medicine altogether. It was broadly felt that authorities were trying to force them into particular career paths irrespective of the personal aspirations of the individuals. Until then, provided they were academically and clinically capable, most believed that doctors could pursue the career of their choice. In the very competitive specialties it was accepted that not everyone would achieve their goal. With MTAS, and Modernising Medical Careers (MMC), doctors had one opportunity to apply for their preferred specialist training track and little or no chance to try again at a later date if they were initially unsuccessful. Many talked of being treated like machines and being forced into medical fields not of their choosing for fear of unemployment. Student output from medical schools was, by this time, matching medical manpower demands in terms of overall numbers. Planners, however, anticipated half the workforce being deployed in primary care, whereas preference for this career path fell well short of that target.

Although considerable efforts were made to improve the application process following the computer failures, many doctors were left with last minute applications for jobs. Several experienced considerable geographic displacement and even disruption of family life. While this had occurred under the previous system the short notice of such dislocation was unprecedented. At least two doctors in the year 2 cohort left the country to work abroad as a direct result of the chaos and uncertainty surrounding MTAS.

Whilst there was much resentment about the MTAS fiasco, there was a general sense of realism among doctors emerging from foundation training. Most felt there would always be work for doctors but that perhaps, as in other walks of life, medicine was not necessarily a career for life. The need to be flexible and respond to the requirement of the population was fully recognized. Nonetheless the universal feeling was that doctors were being asked to choose their lifetime occupation too early and had too few opportunities to stay on track if not successful on their first application. The need for individual doctors to find their own way into whatever career path they eventually found themselves contrasted starkly with the mechanistic approach of MMC towards matching numbers of trainees to NHS requirements. To embark on a particular career path after coming to terms with not being able to pursue the career of choice is one thing, but not to be given much choice in the first instance is quite another.

The United Kingdom Foundation Programme Office Foundation Doctor Advisory Board has stated that

> Not all applicants will get their first choice of specialty; especially with post numbers expected to decline over the next three years. Therefore, there is a strong need to manage expectations…and bear in mind the expectation for 60% of graduates to enter general practice by 2013 (United Kingdom Foundation Programme Office, 2009).

Medical graduates will increasingly have to anticipate future employment opportunities within the NHS when considering their choice of specialty training. Planners need to review carefully the psychological impact of their systems led approach, if they are not to create a large number of disillusioned doctors early in their careers. More sophisticated guidance is required for choosing a career with a greater emphasis on empowering the individual to make that decision.

Chapter 10: Discussion

This thesis set out to examine the influence of a four month postgraduate attachment in general practice during foundation year 2 on doctors' career decisions. The hypothesis was that the attachment itself would increase the likelihood of a doctor becoming more interested in a career in general practice. The thesis also assessed the influence of the attachment on doctors' understanding of general practice and the effect of such understanding on any related pre-existing beliefs or attitudes towards general practice.

10.1 Background to the study

The study needs to be set against the background of shortages of general practitioners in many Western countries (Creed et. al., 2010). Declining interest in general practice careers over the last decade has been reported among medical students and doctors in the USA, Canada, Australia, New Zealand and several European countries (McKee et al., 2007; Thistlewaite et al., 2008a; Buddeberg-Fischer et al.,2008a; Jeffe et. al., 2010). Recruitment to general practice in the UK has remained relatively constant over this period but there is concern that growth in demand for general practitioners will not be met by increased recruitment of medical graduates to general practice (Centre for Workforce Intelligence, 2010).

10.1.1 Developments in postgraduate training

A review of postgraduate medical training in the UK recommended the introduction of a new structure for postgraduate medical training and resulted in the Modernising Medical Careers (MMC) programme (Department of Health, 2002). This included the introduction of a two year foundation programme replacing the immediate pre-registration house year and the first year as a Senior House Officer. Foundation training is followed by further postgraduate training programmes which, upon successful completion, lead to the award of a certificate of completion of training (CCT) either for specialist or general practice training.

Most specialties have retained 'run through' specialist training consisting of between five and seven years uninterrupted progression through a specialist training programme.

There is a single selection process at the commencement of training. Some medical Royal Colleges, including the Royal Colleges of Physicians, Surgeons and Anaesthetists, have uncoupled their 'run-through' training programmes. They have separated specialist training into a two to three year core training period followed by three or more years of higher specialist training. There is selection to both core and higher specialist training.

10.2 Formulating a hypothesis

The possibility of providing experience of general practice during foundation training to all doctors irrespective of their career intent was initially considered (Department of Health, 2004a). There was little evidence from published research to suggest whether doctors were more or less inclined to follow a career path in general practice following a postgraduate attachment. Nevertheless it was hypothesised that the likelihood would increase. The aim of the study was to develop a methodology that would test this hypothesis.

10.3 Developing a methodology

There has been much interest in the foundation programmes since their implementation. The adoption of foundation programmes across the whole UK represented an opportunity to study closely the impact of such attachments on doctors' career paths. At the time of planning the study, changes in medical workforce configurations currently witnessed were not much in evidence. The present emphasis is to considerably increase the provision of primary care services (and general practitioners) and restrict training opportunities in some specialty fields.

Sci 59 was identified through a search of the literature. This instrument is intended to help medical students and doctors find careers that best match their personalities and attributes. Its ease of use and analytical programme met the technical requirements of the questionnaire element of the study. Full details of the development of sci 59 have been published in the cited literature (Gale & Grant, 2002) and its use in this study is described in Chapter 8. Sci 59 remains in general use in the UK by educational organisations including Deaneries, postgraduate medical centres and the British Medical Association.

The design and development of the interview schedules is described in Chapter 7, and the results of the thematic analysis with reflections and commentary are recorded in Chapter 9**.** Interview participants were asked about their career aspirations from early childhood to post graduation.

10.4 Findings from sci 59 questionnaires and participant interviews

The study took place in a single UK Deanery over a two year period immediately after the introduction of foundation training programmes. All eligible participants were invited to take part in the study. Half of doctors in the Kent Surrey and Sussex (KSS) Deanery who undertook a four month general practice attachment completed sci 59 career questionnaires before and after their attachment. Comparison of the questionnaire output, before and after the four month attachment in general practice, demonstrated a small non-significant increase in the ranking of general practice among the total study population. Further analysis showed those whose initial questionnaires revealed low rankings for general practice recorded a small but statistically significant increase in the ranking of general practice in their second questionnaires (i.e. those administered at the end of the four month general practice attachment). For those with initial rankings in the top half of the listed specialties there was a non-significant decline in the ranking of general practice by the end of the attachment. There were no significant differences in ranking patterns, or ranking changes, between cohorts in each year of the study. Multiple regression analysis of independent variables identified through the questionnaire data collection process (including age, gender, nationality and cohort) failed to detect factors that would explain the increase in ranking observed.

Some caution is required in interpreting these results. Certain aspects in the development of sci 59 have been referred to already and may have blunted its ability to detect shifts in intent. Nevertheless the results raise interesting further questions. What are the reasons for those with lower initial rankings for general practice showing better matching to general practice at the end of the four month attachment? Whilst it may be logical to expect an increased interest in general practice immediately following the attachment, it is still not clear why the difference between those with higher and lower initial rankings was observed? It would be interesting to investigate individual experience and career beliefs before doctors undertake their four month attachments and

link these with movements in ranking between questionnaires. Are there differences between those with higher and lower initial rankings? If these exist are they related to personality attributes or demographic and educational backgrounds? To what extent were views of the four month postgraduate attachment influenced by other experience of general practice either in an undergraduate setting or as a result of personal or family involvement with general practice? Being brought up in a rural background, interested in general practice prior to admission to medical school and undertaking an undergraduate attachment in general practice have all been highlighted in the literature review as important predictors of a future career in general practice (Feldman et al., 2004; Zarvovic et al., 2006; Mairova et al., 2008). Career decision making among those undertaking postgraduate attachments can be significantly influenced by earlier experience and may explain why more significant movements were not seen. Recording how doctors think about their career paths before, during and after the postgraduate general practice attachments might be useful to healthcare planners, career advisors and doctors themselves.

The categorisation of career influences into those that occurred before university/medical school, during university/medical school and following graduation formed the framework for the interview phase that then followed. Study participants who had completed two sci 59 questionnaires were invited to take part in a telephone or face to face interview. The design of the semi-structured interviews has been described in Chapter 7 (page 130). Volunteers were interviewed and their recordings transcribed. Thirty doctors were interviewed over the period of the study including four who participated in the pilot phase of the study. An agreed set of themes was drawn up by NM and ME and these were used as Free Node headings in NVivo 7. The transcripts were then subject to thematic analysis.

10.5 Thinking around early career choices in medicine

In early life a number of factors influenced children in choosing medicine as a future career path. Those from families whose members worked in a health related field acknowledged the importance of their relative's role in determining their own career path. Zarvovic et al. (2006) have emphasised the importance of family influences in terms of specific medical careers and demonstrated that children choosing medicine

whose fathers were doctors, irrespective of their specialty, were less likely to select general practice as a final career.

Those who had family members who were health care professionals recognised that their decisions were influenced through these associations but were not always certain of the mechanism. Whilst some clearly admired the occupation of their relative it was more common to be told of the exposure they had from a young age to matters of a medical nature.

Those children with no family members working in medicine tended to be firmer in their decisions to pursue a career in medicine but may have been disadvantaged later on when it came to deciding on more specialist career trajectories. There is potential for additional support and mentoring to assist with career decision making for this particular group.

There was frequent reference to the need to have a satisfying and challenging career. This is perhaps not surprising given that those interviewed (all qualified doctors) will have come through an intensely competitive and reasonably arduous selection and training system. However, even at an early age, the need to be challenged was a recorded feature of many future medical students. Perhaps this arose from observing their parents in the middle to late years of their employment. Children will have been witness to parental success, ambivalence or even failure.

Besides the vocational nature of being a doctor many set preconditions, including being passionate about, and constantly interested in, their future career. Motivators for medicine as a potential career have been studied elsewhere in medical school applicants. McManus et al. (2006) describe four prime motivators among students applying to study medicine (indispensability, helping people, respect and science) and related them to gender, personality, GCSE grades and social class. Males tended to want to be indispensible and were less likely than their female colleagues to want to help individuals. Those from ethnic backgrounds demonstrated greater interest in science but experienced more personal stress than their non-ethnic colleagues. This study underlines the importance of a challenging and satisfying career for school leavers considering a career in medicine.

Some school students changed A level courses in order to improve their chances of gaining admission to medical school. Those who changed course midway through their original A levels suggested that employment doubts played as much a part in decision making as realisation of a wish to pursue medicine. With increasing age more pragmatic considerations became evident during some of the interviews. Choices were often made on the basis of exclusion. Those who had undertaken degrees other than medicine found themselves dissatisfied with their further career or academic options. They then considered medicine a real option and were perhaps in a stronger position to apply for medicine having demonstrated success in an earlier degree. This group has attracted considerable interest in recent years. Lambert et al. (2001) found that graduate entrants were more likely to seek careers in general practice than their non-graduate contemporaries. However, later work by Goldacre et al. (2007) reported only a modest increase in direct entry graduates seeking careers in general practice. They did find that graduate entrants were more likely to specify a career choice before entering medical school. Graduate entry to medicine is the norm in the USA. The policy of providing medical school places for those who have completed other degrees remains in force in the UK. Understanding more about the career plans of this group is of continuing interest to manpower planners and medical teachers.

Some work experience undertaken by students prior to entry to medical school was formative in terms of future career choice. This has not been reported in the literature. Some had positive experiences in clinical settings in which they could see themselves in the future. Others were less fortunate and were concerned, particularly in respect of nursing home experience, that this was the real face of medicine in the UK. It is understandable, with school children coming from such diverse backgrounds, that universities and medical schools require teenagers interested in pursuing a career in medicine to undertake such attachments. However, the uncontrolled and random nature of these experiences may have lasting effects on individual medical student career choice. There is an opportunity, at this early stage, to produce a uniform and standardised exposure that might assist individuals in making their initial career choice. In addition, authorities responsible for providing medical manpower for the nation could contribute to the development and structure of courses preparing students for the realities of working within the National Health Service. This is particularly important in the case of general practice. Potential medical students need to be aware of the realities

of workforce configurations at an early stage. The influences of such courses could be measured on a prospective basis and help understand the interactions of environmental factors on the developing career mindset of late teenagers interested in studying medicine.

The childhood and teenage years of those participating in this study were very important in terms of career decision making. In an effort to generate sufficient general practitioners for the future some medical schools in the USA and Canada are selecting medical students on the basis of their intended career choice (of general practice) (Senf et al., 1997). It is well recognised in North America that those coming from rural backgrounds and professing an interest in general practice prior to enrolling in medical school are more likely to pursue successful careers as general practitioners (Pretorius et al., 2008). There is currently very little systematic support for teenagers considering a career in medicine in the UK. It is conceivable that short courses demonstrating all careers available (associated with some practical experience) might help counter the mismatch manpower problems currently seen in many countries.

10.6 Career thinking as an undergraduate

The general enjoyment of undergraduate training throughout medical school/university was a common theme among interviewees. Many could envisage themselves pursuing a career in whatever specialty they were experiencing at the time. There was apparent enthusiasm for learning at every stage and, occasionally in the interviews, a palpable sense of wonderment when recounting undergraduate attachments. It was during early clinical years, however, that students began to consider career options. Closer questioning did reveal some unhappy learning events, either attributable to the attachment itself or the people encountered in that specialty. As a result some specialties were discounted as future career options. In keeping with the rational approach to career decision making proposed by Harren (1979) and Gelatt (1989) several participants talked of financial security, good job prospects and satisfactory work-life balance as important influences in their choice of career path. However intuitive elements continued to play a major part in directing students' professional development with knowledge and complex problem solving attracting most comment.

As they moved through their last three clinical years there was an impression that students became more broadly discriminatory in their choice of potential careers. Some found considerable excitement in the acute side of medicine with experience of A&E attachments being particularly enjoyable. Students were able to see patients in different settings and gain a wider understanding of human behaviour during times of ill health. A need to be regarded as competent by patients and peers was evident in most of the interviews. Interviewees talked of preparing themselves for work in the real medical world as opposed to the protected environment of their undergraduate training.

Little independent guidance in terms of career direction was offered to most undergraduates during these clinical attachments. Other work has reflected this finding and suggests there is a continuing unmet need in terms of career guidance and advice at undergraduate and postgraduate stages (Blades et al., 2000). The need for better career advice is also emphasised following the evaluation of foundation training programmes (Collins, 2010). Generating a set of clinical simulations might give students the opportunity to appraise their own strengths and weaknesses. This would build on the standardised experiences of school children prior to enrolment as medical undergraduates. Other occupations such as the armed forces use simulators to assess whether service personnel are suitable for the very expensive business of pilot training.

As far as general practice attachments during undergraduate training are concerned quality of experience reported by interviewees varied considerably. Morrison & Murray (1996) reported that students were more likely to select general practice as their preferred career option immediately after a four week attachment in their final clinical year. However their preference had largely disappeared by the end of their first postgraduate year. Maiorova et al. (2008a) found that the positive effect of 12 week clinical clerkships in general practice in the final undergraduate year was short lived. Students initially reported increased interest in general practice as a career but by the time they qualified this effect was almost completely lost. Some graduates were influenced by subsequent undergraduate clinical experiences. It was suggested that experiences of general practice should be offered throughout undergraduate training.

Some interviewees described their first undergraduate experience of general practice as unsatisfactory. They felt they needed more time to become familiar with the distinctly

different working environment of general practice. Variability of initial experience was a very real factor in putting several interviewees off general practice at a relatively early stage. Whilst teaching students in general practice is not currently afforded the same status or funding as the training of general practice registrars, it is clearly important to provide better initial experiences if interest in general practice careers at a later stage is to be fostered. It may be helpful to design a module prior to attachments in general practice that enables undergraduates take better advantage of their time in general practice. Several interviewees went to their practices as undergraduates with preconceived negative views arising from denigration of general practice as a career option by hospital teachers and fellow students.

Absorbing the complex learning needs of these individuals into a busy working environment may be very challenging for most practices. A strong case could be made for more investment in student training practices whose priority would be to provide high quality clinical attachments for all students. This again could follow a simulator model with standardised experiences being developed and delivered.

There is also a case for building on the initial undergraduate attachments by increasing exposure to aspects of general practice throughout undergraduate training. Several interviewees remarked on the very positive experience of general practice during foundation training in contrast to their negative experience as undergraduates. It was evident that some might have considered general practice as a career prior to graduation if their undergraduate experience had been more positive.

10.7 Career thinking post graduation

Differing perceptions were evident during the immediate postgraduate phase of doctors' lives. Some doctors, during their first foundation year, were excited by their early responsibility for sick patients. They knew that they would enjoy their time in hospital medicine and quickly found a speciality of interest – if they did not have one in mind already. They enjoyed working in teams and valued the constant support of their seniors in any major clinical decision making situation. Others felt diminished and undermined within their hospital environment and began to question their specialist career choice. They were struck by the criticisms hoisted at general practice by their clinical

colleagues working in hospitals. There was a general feeling that hospital doctors with no previous experience of general practice had no real appreciation of the work conducted by general practitioners and their teams. There was reference to life outside working in hospitals. Several talked of work life balance becoming increasingly important in their decision making processes. Some talked of working to live rather than living to work. Lifestyle factors have been shown to play a major role in doctors switching from mainly hospital based jobs to general practice (Evans et al., 2000; Lambert et al., 2003a).

This change in thinking could simply reflect changing priorities over time. Many doctors were thinking of having a family and wished to ensure that sufficient time was available to care for children as they grew up. There was also an expressed wish to have time for outside, predominantly, leisure pursuits. Careers like general practice and emergency medicine were seen as more conducive to achieving anything approaching the lifestyle balance to which many aspired. Once again career decision making was based on exclusion of certain careers rather than actively choosing a specific route.

The altruism of earlier years was still evident among some but had been replaced in many others by more pragmatic considerations. Some interviewees had negative experiences of hospital training during the first foundation year and reported diminished interest in medicine generally as a result. Whilst there is some clinical exposure during the latter part of undergraduate training it may not prepare doctors sufficiently for the reality of working in a busy hospital managing acutely ill people.

10.8 Career thinking during foundation year 2

The interviews provide some potential explanations for the improvement in ranking of general practice among foundation doctors with lower initial sci 59 ranking for such a career. Many gained a deeper understanding of patients and the complexity of their problems in primary care settings. They quickly learned of the continuing and responsible role that general practitioners had with individual patients and local communities. They found the ongoing relationship a positive feature of general practice that enabled real changes to be made to the lives of the individuals they looked after.

This reflects the earlier finding by Fairhurst & May (2006) that the ‘centrality of relationships’ with patients gives meaning to the work of general practitioners.

For some the opportunity to make clinical decisions on their own was important and a contrast to the situation in their junior hospital posts. Much comment was made on the friendliness of practice environments. Interviewees stated that they were regarded as equals, and treated with respect, by their clinical colleagues in the practices. Several references were made to the prodigious workloads of general practitioners. Whilst this realisation might have deterred some from a general practice career it did tend to enhance the image of the family doctor.

Study participants, irrespective of their career intent, reported that their understanding of general practice had been significantly enhanced as a result of their four month attachment in the second foundation year. There was general surprise at the demanding nature of the job and the central role played by general practitioners in keeping patients out of hospital. General practitioners were seen as hard working doctors. Several of the foundation doctors felt the adverse preconceptions of general practice brought with them had been dispelled by their attachment.

A third of those interviewed expressed early enthusiasm to become general practitioners with special interests. In practice few of these roles exist formally for newly qualified general practitioners. This aspect of professional development has previously been identified as an important element of policies aimed at recruiting and retaining general practitioners (Boggis & Cornford, 2007). Further research, among senior medical students and doctors immediately after training, into the attractiveness of combined generalist and specialist training paths is needed. This sample is small and these findings may not be generalisable. Nevertheless the potential ability to retain some specialist role whilst practicing as a generalist was regarded as important by a number of study doctors considering their career choices.

In addition two week attachments to specialties, or ‘tasters’, have been provided for approximately 5% of foundation year 2 trainees (Collins, 2010). These were found to be too short, difficult to access or delivered too late to affect decision making. As a

relatively inexpensive way of exposing trainees to a variety of career options it would be interesting to investigate the effects of ‘tasters’ on career decisions.

There is little doubt that lifestyle factors influence career decision making in the early postgraduate years of medical graduates. Young & Leese (1999) recommended introduction of salaried employment and greater opportunity for part time working in general practice in order to tackle recruitment difficulties. Blades et al. (2000) identified factors that attracted doctors to general practice careers. These included variety of work, continuity of patient care and the opportunity to combine work with personal and family commitments.

Several interviewees had very negative views of hospital practice following foundation year 1 training and their experiences as senior medical students. Reference to long and anti-social hours was frequent with others citing hostile, competitive or unsupportive co-workers or seniors as reasons for eschewing specialist practice. Their career choice was determined as much by exclusion of specialties as specific identification of a preferred path. As students and doctors pass through their undergraduate and postgraduate training they become more discriminating in specialty selection and can identify careers they do not want to pursue.

They also change their mind. Scott et al. (2007b) showed that Canadian graduates who changed career direction, from a specialty to general practice, did so predominantly for reasons of medical lifestyle and ease of residency. Those changing from general practice to specialist careers cited positive clinical exposure, competence and economics as the reason for their shift in direction. Developing techniques that might help doctors identify careers that do not suit them might be more useful than trying to match them to individual specialities.

The need to have satisfying and challenging careers was reported by many of those interviewed. Whilst several interviewees recognised the vocational nature of medicine as a positive attraction, much emphasis was also placed on academic achievement and the pursuit of excellence. This contrasts somewhat with more pragmatic considerations that tend to dominate in the postgraduate period including pay, flexible working and reasonable working hours (Harris et al., 2005; Blades et al., 2000).

10.9 Foundation training and general practice choice

By the end of 2009 there were nearly 37000 consultants working in the NHS. The number of posts had increased at an average annual rate of 4.7% over the previous decade (Information Centre, 2009a). Over the same ten year period the number of general practitioners increased at an annual rate of only 0.3% from 27,681 to 28,607 (Information Centre, 2009b). Foundation training managers are anticipating that 60% of graduates will 'enter general practice by 2013' (United Kingdom Foundation Training Programme Office, 2009). At the same time competition for some specialist training posts is intense whilst community based specialties, including general practice, psychiatry and public health, struggle to attract sufficient candidates. Despite awareness that opportunities to train as a specialist are decreasing many newly qualified doctors pursue specialist careers. A significant 'disconnect' exists between their career aspirations and likely employment opportunities. There are 'increasing numbers of doctors committed to and training within specialties that do not need them' (Irish et al., 2010). This highlights the difficulty in matching the career wishes of individual doctors with the medical manpower requirements of society.

10.9.1 Choosing career paths

Many of those interviewed in the thesis asserted that qualifying doctors should be able to pursue initial career paths of their own choosing. Several stated that an advantage of the system prior to MMC was that doctors could spend some time in one or more specialties of their choice. Although doctors might not have made much career progress, they could acquire first hand experience of working in particular specialities. This was seen as helpful when coming to a decision on a more definitive career path. MMC now requires doctors to choose careers before they have gained much postgraduate clinical experience. Besides focussing on their own academic or professional preferences doctors have to take much earlier account of the availability of NHS training posts and subsequent employment opportunities. Generating more realistic expectations of future medical careers may reduce the frustration and disappointments expressed by those interviewed in the study.

10.10 Recruitment to general practice

Recent evidence in a Department of Health report suggests that there is a significant medium-term risk of general practitioner shortages and that 'realistic projections indicate a growing gap between demand growth and GP supply' (Centre for Workforce Intelligence, 2010). A recommendation was made that *moderate expansion* in the number of GP training posts (towards 3000 per annum) should be allowed for 2011. It was also observed that not all training places were filled in 2009. Recruitment to posts in 2010 was only achieved following second round applications. These include posts that remain unfilled from Round 1 and give applicants another opportunity to secure a training place (albeit not in the Deanery of their first choice). Competition was also open to non-UK/EEA applicants during the second round. It was acknowledged that a commensurate increase in the number of training positions would be required in order to increase the number of general practitioners in the National Health Service. It was also recognized that some areas of the UK had particular problems in attracting general practitioners and that GPs had 'limited geographical mobility once trained'. The report proposed measures to improve provision of primary care to the general population including:

- Looking beyond general practitioners as care providers and developing roles complementary to general practitioners including advanced nurse practitioners,
- Reducing the period between doctors' qualifying and taking up substantive general practice positions, and
- Ensuring that all medical training programmes include a broader based curriculum more relevant to general practice.

10.10.1 Advanced nurse practitioners

The role of the nurse practitioner was originally conceived in the USA in the 1960s and adopted by the UK in the 1980s (Sharu, 2007). More recently advanced nurse practitioners (ANPs) provide services to patients in primary and secondary care. These advanced and independent nurses frequently 'provide services previously within the exclusive domain of medicine'. Their role as advanced nurse practitioners has been defined by the UK Nursing and Midwifery Council:

> *Advanced nurse practitioners (ANPs) are highly skilled nurses who can take a comprehensive patient history and carry out physical examinations. They use their expert knowledge and clinical judgment to identify the potential diagnosis, referring patients for investigations where appropriate. ANPs make final diagnoses and decide on and carry out treatment, including the prescribing of medicines, or referring patients to an appropriate specialist. They use their extensive practice experience to plan and provide skilled and competent care to meet patient's health and social care needs, involving other members of the health care team as appropriate. Advanced Nurse Practitioners also ensure the provision of continuity of care including follow-up visits, assessing and evaluating, with patients, the effectiveness of the treatment and care provided making changes as needed. ANPs work independently, although often as part of a health care team. They provide leadership, making sure that each patient's treatment and care is based on best practice.* (Nursing & Midwifery Council 2005)

The potential for ANPs to take on roles traditionally the province of medical practitioners in UK primary care has been recognised (Department of Health, 2006). They already provide community services in walk in centres and polyclinics. Expanding the number of ANPs could offer patients a wider choice of health care professional as well as improved access to services.

10.10.2 Physician assistants

In addition to ANPs physician assistants are taking on roles complementary to general practitioners in the UK. Their role was first established in the United States of America. Physician assistants have subsequently appeared in other countries including Australia, Canada, Ireland, Netherlands, South Africa and Thailand (Hooker et al., 2007). Training programmes for physician assistants in the United Kingdom have been provided since 2008. Working under the direct supervision of a doctor they are able to diagnose and manage specific conditions. Their training covers history taking, physical examination and diagnosis and interpretation of laboratory results. They can work in a variety of clinical settings in general practice and in hospital (Hutchinson et al., 2001). Candidates with health related first degrees can undertake a two year postgraduate diploma in physician assisted studies at a small number of UK universities; and a postgraduate degree also commenced in 2008. The curriculum contains many elements of traditional five year medical training programmes but focuses on general medicine in hospital or general practice. An evaluation of physician assistant role in general practice

in Scotland found that they were ‘generalists with a background of medical training, confident and autonomous within their scope of practice’ and that they were ‘confident in dealing with uncertainty’. They worked most effectively where there was a team gap that they could fill. Those working with them thought they could be deployed in medical roles at ‘a saving of £43,000 upwards if they worked ‘like’ a generalist doctor’ (Farmer et al., 2009). Although not yet a registered profession there is potential for these health professionals to complement the traditional role of general practitioners and to strengthen primary care teams.

10.11 Impact of foundation training on medical careers

A formal evaluation of foundation training was commissioned by Medical Education England and has recently been published (Collins, 2010). The purpose of the evaluation was to assess how successful foundation training had been in delivering against its original objectives and recommend changes that might ensure foundation programmes meet future needs.

It was acknowledged in the report that ‘a greater share of healthcare is now delivered in the community with successive governments supporting a model in which this will expand’ and that around half of all medical graduates will become general practitioners.

10.11.1 Recruitment to general practice training programmes

There was an improvement in recruitment to general practice training programmes among foundation doctors in 2010. 19.8% of foundation doctors applied solely to general practice training with 45.6% including general practice as an alterative option to their first choice. The proportion of doctors making general practice their first career choice has remained relatively static but increasing numbers regard general practice as an acceptable alterative career option. 23% of foundation doctors surveyed in the report maintained that foundation training had helped them consider more career options. These findings were not specific for general practice but do suggest that foundation training has significant influence on career choice. The inclusion of general practice as a possible career option following four month placement in foundation year 2 was also recorded amongst those interviewed in the thesis. Several doctors did not change their

first career preference but did consider general practice a realistic career option in the event of not being selected for their preferred specialty. Comparison of career rankings of general practice before and after the four month attachment using sci 59 showed a small but significant increase in ranking for general practice among those whose initial rankings were low. This is consistent with the findings of UK Medical Careers Research Group and the responses of doctors surveyed in the foundation evaluation report.

10.11.2 Managing career expectations

A large number of medical graduates continue to apply for heavily over-subscribed specialties. Many who successfully complete core training are unable to secure advanced training in their particular specialty. They often have to start from the beginning of training programmes in other specialties. It is recognised that it is challenging to help trainees 'manage their career expectations against realistic opportunities and the needs of the service, while at the same time encouraging them in their overall aspirations'. The report recommends that career advice including information on competition ratios and the likelihood of applications for particular specialties being successful should be easily available to medical students and doctors early in their careers. This should enable them to make 'early and wise' long term career decisions.

The majority of foundation programmes in 2009 had fixed two year programmes which meant that specialty placements in foundation year 2 were fixed before trainees started foundation year 1. Many trainees objected to this. The report recommended that foundation year 2 placements should be 'aligned' where possible to the 'broad areas in which trainees hope to pursue their careers' at the same time as continuing to meet the workforce needs of the NHS and generic competences required of foundation training.

10.11.3 Workplace based assessment (WPBA) in foundation training

Assessment methods used in foundation training attracted considerable criticism from trainees and teachers alike. There was confusion over the role of Workplace Based Assessment tools. Designed as formative instruments to support learning in the

workplace there was evidence that they were being used for summative purposes. Some specialties have asked for WPBA scores for selection purposes. As high achievers medical students and doctors are accustomed to attaining high marks in examinations and regard lower scores as denoting failure. The competitive nature of those studying medicine makes adapting to formative assessment difficult for many doctors. In addition the design of the instruments is criterion based rather than normative (Eraut, 2008). The assessor is asked 'to judge the trainee's performance on a 6 point scale from *"Below expectations for level of training"* to *"Above expectations for level of training"'*. Assessors often lack prior experience of observing trainees in particular working situation and do not trust the instruments. Changing the culture of assessment is only likely to occur with 'support from those who have experienced properly implemented formative WPBA' (Collins, 2010).

10.11.4 Timing of career choice

Postgraduate training arrangements differ throughout the world and play a part in determining the timing of career decisions. Doctors in the USA and Canada decide on their specialist training programmes by the time they graduate. Doctors in the UK and Australia, however, tend to leave decision making until later on (Bunker & Shadbolt, 2009). The degree to which career intent accurately predicts career outcomes is of interest to doctors and medical educationalists. Recent research among UK medical graduates by Goldacre et al. (2010) has shown that half of doctors are working in specialties other than the one they chose in their first postgraduate year and about a quarter are in a specialty different from their initial choice three years post graduation. The national implementation of two year foundation training programmes followed by specialist or general practice training means that junior doctors have to decide on their careers earlier than they might have in the past. It remains to be seen whether similar shifts in career direction will occur in future decades. The requirement to repeat full training programmes if original paths are abandoned may be a real deterrent to doctors thinking of changing their career path.

10.12 The need to understand career thinking among doctors post-graduation

The intention of foundation training was to develop and enhance core or generic clinical skills essential for all doctors (Department of Health, 2003b). In addition doctors gained postgraduate experience in different specialities potentially assisting in making appropriate career choices. However, doctors often have to make career choices between the end of their first foundation year and the beginning of the second. This means that experience after the part of their second foundation year will not influence career choice.

Following Modernising Medical Careers doctors are now under more pressure to make long term career choices within the first two years of qualification. They can no longer spend time in several six to twelve month posts sampling a variety of clinical specialties before deciding to undertake specific postgraduate specialist or general practice training. Once doctors have embarked on a specific specialist training programme it can be difficult for them to change course. There is currently no mechanism for recognising prior experience in other specialties. Measures to allow for this previous experience, including ‘credentialing’, have been proposed but not yet adopted (Irish et al., 2010).

The move to encourage more doctors into general practice represents a deliberate effort to provide a medical workforce that more closely aligns itself with the needs of UK society (United Kingdom Foundation Programme Office, 2009). This shift in workforce configuration is underlined by greater emphasis on the role of general practice in disease prevention and management outside hospital settings.

10.13 New information and new questions emerging from the study

The main aim of the thesis was to establish whether a four month attachment in general practice during the second foundation training year influenced career intentions among doctors. Foundation training had just been established in the UK at the commencement of the study and was the first such programme to be implemented on a national basis. Its purpose was to develop and enhance core and generic skills for all doctors. It was also an opportunity for doctors to sample a range of specialties prior to entering basic specialist training programmes. Measuring the impact of a structured postgraduate

attachment on career preference of doctors shortly after graduation was regarded as important to both society and the profession.

The modest, but statistically significant, increase in the ranking of general practice using sci 59 among those whose initial rankings were lower for general practice is an important finding. These doctors may have based their initial views on general practice attachments as undergraduates or on the views of fellow students or their teachers. The experience of second year foundation training placements in general practice has, to some extent, blunted some of the effects that contributed towards a lower initial ranking and resulted in a higher likelihood of a career in general practice being considered after the attachment itself. The reasons for this remain unclear, as does the question of whether this is a durable effect. It is difficult to quantify the increase in ranking in terms of other influences, both professional and personal, since they interact in a complex way at a time when many graduates are deciding on their specialist training path. The potential for any one specific intervention to make a very significant difference is questionable in terms of career intent. However, the fact that movement does occur indicates that decisions about careers are still being made two years post graduation and does reflect the findings of Goldacre et al. (2010).

Improvement in the image of general practice that followed a four month attachment during the second foundation year is a new finding. Although this has only emerged qualitatively in volunteer interviewees, effective communication between specialist and general practitioners is central to high quality patient care. The disparagement of general practice among students, doctors and medical teachers evident in many developed countries is ‘troubling’ when professional groups need to cooperate very closely in order to achieve optimum clinical care (Campos-Outcalt et al., 2003). This area merits further research into whether attitudes and beliefs might change following a postgraduate attachment to general practice. Lessons from foundation general practice attachments may be transferable and improvements in the regard of other specialties may also be achieved as the result of corresponding postgraduate attachments.

There were several references by interviewees to being asked to make career choices too soon as a result of implementation of Modernising Medical Careers. Whilst the study took place at a time of considerable anger following the failure of MTAS there

was a general feeling that doctors were being asked to select their careers path too soon and that there was little opportunity to change direction if their first choice proved unsatisfactory. Goldacre et al. (2010) reflected this theme and recommended that at least two entry points should be available for most specialties. They considered it particularly important that there should be an opportunity for later entry to specialties such as general practice, psychiatry and public health. This lack of flexibility in career terms was reiterated in the study interviews.

Other areas of interest have emerged from the thematic analysis of interviews that may merit further attention.

Although undergraduate clinical attachments in general practice are widely available to UK medical students their impact in both the short and medium term remains uncertain. There is some evidence from those interviewed that the quality of the attachments varies considerably. It would be interesting to investigate the characteristics of unsuccessful undergraduate attachments in general practice in order to improve the initial practice experience for undergraduates generally.

There was considerable interest in pursuing a generalist career at the same time as retaining specialist skills. Some doctors expressed reluctance to lose contact with hospital specialities but were also enthusiastic about caring for patients in community settings. Whilst general practitioners with special interests exist in primary care today it may be valuable to explore in more detail the professional expectations of this group of doctors. There may be other career paths that combine specialist and generalist roles and prove more attractive to recent graduates than current structures.

Combining family life and reasonable lifestyle with work was cited as important by several interviewees. Males and females expressed this wish but it was more evident among female interviewees. The increase in percentage of female graduates in the UK has resulted in better recruitment of women to general practice with many doctors working in a part time basis. In recent years, however, the number of women working part time has reduced due to changes in partnership working patterns and the availability of salaried positions with defined hours of work in clinical practice (Department of Health, 2004a).

This trend has been seen throughout the developed world. Despite women preferring to work in community settings recruitment difficulties to general practice remain (Howe & Ives, 2001; McKinstry et al., 2006). Mairova et al. (2008) reported that the gender of graduates made little difference to their likelihood of pursuing general practice as a career. It may not be sufficient to depend on the increasing number of female medical graduates to meet future requirements for general practitioners.

10.14 Limitations of the study

The study only covers the period from 2005 to 2008. This was shortly after the introduction of foundation training. This may have been an atypical time with initial problems emerging as the scheme was rolled out nationally.

Those involved in the questionnaire element of the study were drawn from a single Deanery. The characteristics of graduates in the Kent, Surrey and Sussex (KSS) deanery have not been compared to other Deaneries.

The limitations of sci 59 and analysis of the findings have been discussed on page 127. Only half of the 225 invited participants responded to both questionnaires.

The structure and development of the interview schedules, and their potential shortcomings, have been described in Chapter 7. The 30 respondents who had completed two sci 59 questionnaires were interviewed. The views or responses of those who completed one or no questionnaires are not known.

Chapter 11: Conclusion

This study set out to determine whether a four month attachment in general practice during the second foundation year influences doctors' career choice. It was conducted among all doctors enrolled in foundation training programmes, including a four month attachment in general practice, in the Kent, Surrey and Sussex Deanery between 2005 and 2008. All participants (n=225) were sent a sci 59 questionnaire at the beginning and on completion of their attachment. Those responding to both questionnaires were invited to take part in an interview

112 participants completed sci 59 questionnaires at the beginning and end of their 4 months attachment. Initial analysis demonstrated a small, statistically non-significant improvement in career intent towards general practice. Using a measure that reflects movement in ranking between the two questionnaires, further analysis showed a small, statistically significant, improvement in the ranking of general practice among participants who had low initial rankings for general practice.

30 participants were interviewed. Placements in general practice during the second foundation year were generally regarded in a very positive light. Doctors particularly valued ongoing relationships with patients as well as involvement with local communities. They commented on the high quality of supervision and the structured learning environment of their attachments.

New findings included the observation that career ranking for general practice improved following a four month postgraduate attachment in general practice among those less inclined to general practice as a career in the first place. Thematic analysis of transcribed interviews revealed enhanced respect for general practice as a career option among foundation trainees irrespective of their eventual career intent. This was regarded as important in the context of persisting disparagement of general practice by some students, clinicians and teachers. In addition this change was felt to be helpful in engendering mutual respect and improved working between specialist and generalists in the future.

It was evident from those interviewed that the experience of general practice attachments as undergraduates was variable. There is the potential to improve the quality and nature of that first experience. There was interest in combining a specialist with a generalist career among several interviewees. Although attracted to general practice they were reluctant to relinquish their hospital connections in order to pursue a generalist path. There may be potential in the future for career configurations that more closely match the aspirations of these particular doctors.

Some studies have suggested that sole reliance on the increased number of women entering the medical workforce to ensure sufficient general practitioners in the future may be misplaced. Whilst lifestyle and family friendly work opportunities are very important to many medical graduates other careers in medicine are providing similar working conditions. Recent evidence suggests that the gender bias towards general practice may not be sufficient to meet future general practitioners requirements.

Changes in medical training opportunities with a diminishing number of specialist posts and increases in the allocation of general practice registrar positions represent a challenge for doctors and health care planners alike. Too many UK doctors want careers in hospital specialties and too few wish to train in general practice (Goldacre et al., 2010). There is evidence, however, that general practice as a second career option is gaining in popularity following the introduction of general practice attachments during foundation training. There is also a growing awareness among UK medical graduates that the medical needs of society need to be reconciled with their own career aspirations.

References

Allen, I. (2005), Women doctors and their careers: what now? *British Medical Journal,* **331**: 569-72.

Anthony, J. S. (1998), Personality-career fit and freshman medical career aspirations: A test of Holland's theory, *Research in Higher Education,* **39**: 679-698.

Babbott, D., Baldwin, D. C., Jr., Killian, C. D. & Weaver, S. O. (1989), Trends in evolution of specialty choice. Comparison of US medical school graduates in 1983 and 1987, *Journal of the American Medical Association,* **261**(16): 2367-73.

Bailey, T. (2007), Is family medicine a specialty? Yes, *Canadian Family Physician,* **53**(2): 221-3, 225-7.

Bain, J. (1996), Vocational training: the end or the beginning? *British Journal of General Practice,* **46**: 328-30.

Bazemore, A. W., Henein, M., Goldenhar, L. M., Szaflarski, M., Lindsell, C. J. & Diller, P. (2007), The effect of offering international health training opportunities on family medicine residency recruiting, *Family Medicine,* **39**: 255-60.

Beardow, R., Cheung, K. & Styles, W. M. (1993), Factors influencing the career choices of general practitioner trainees in North West Thames Regional Health Authority, *British Journal of General Practice,* **43**: 449-52.

Beaulieu, M. D., Dory, V., Pestiaux, D., Pouchain, D., Gay, B., Rocher, G. & Boucher, L. (2006), General practice as seen through the eyes of general practice trainees: a qualitative study, *Scandinavian Journal of Primary Health Care,* **24**: 174-80.

Blades, D. S., Ferguson, G., Richardson, H. C. & Redfern, N. (2000), A study of junior doctors to investigate the factors that influence career decisions. *British Journal of General Practice,* **50**: 483-5.

Bland, C. J., Meurer, L. N. & Maldonado, G. (1995), Determinants of primary care specialty choice: a non-statistical meta-analysis of the literature, *Academic Medicine,* **70**: 620-41.

Block, S. D., Clark-Chiarelli, N., Peters, A. S. & Singer, J. D. (1996), Academia's chilly climate for primary care, *Journal of the American Medical Association,* **276**: 677-82.

Bodenheimer, T., Berenson, R. A. & Rudolf, P. (2007), The primary care-specialty income gap: why it matters, *Annals of Internal Medicine,* **146**: 301-6.

Boggis, A. R. & Cornford, C. S. (2007), General Practitioners with special clinical interests: a qualitative study of the views of doctors, health managers and patients, *Health Policy,* **80**: 172-8.

Bonsor, R., Gibbs, T. & Woodward, R. (1998), Vocational training and beyond-listening to voices from a void, *British Journal of General Practice,* **48**: 915-8.

Bowler, I. & Jackson, N. (2002), Experiences and career intentions of general practice registrars in Thames deaneries: postal survey, *British Medical Journal,* **324**: 464-5.

Bowman, M. A., Haynes, R. A., Rivo, M. L., Killian, C. D. & Davis, P. H. (1996), Characteristics of medical students by level of interest in family practice, *Family Medicine,* **28**: 713-9.

Bright, J.E.H., Pryor, R.G.L., Wilkenfeld, S. & Earl, J. (2005), The role of social context and serendipitous events in career decision making, *International Journal for Educational and Vocational Guidance,* **5**(1): 19-36.

Britten N. (1995), Qualitative interviews in medical research, *British Medical Journal,* 3**11**: 251-3.

Brogger, J., Bakke, P., Eide, G. E. & Gulsvik, A. (2003), Contribution of follow-up of non responders to prevalence and risk estimates: a Norwegian respiratory health survey, *American Journal of Epidemiology*, **157**: 558-66.

Brown, J. M. (2007), Raging against MTAS (UK Medical Training Application Service, *British Medical Journal*, **334**: 549.

Brown, J. M. (2010), The durability of early career choices, *British Medical Journal*, **341**: c3500

Buddeberg-Fischer, B., Klaghofer, R., Stamm, M., Marty, F., Dreiding, P., Zoller, M. & Buddeberg, C. (2006), Primary care in Switzerland- no longer attractive for young physicians, *Swiss Medical Weekly*, **136**: 416-24.

Buddeberg-Fischer, B., Stamm, M., Buddeberg, C. & Klaghofer, R. (2008a), The new generation of family physicians--career motivation, life goals and work-life balance, *Swiss Medical Weekly*, **138**: 305-12.

Buddeberg-Fischer, B., Stamm, M., Buddeberg, C. & Klaghofer, R. (2008b), Young physicians' view on factors that increase the attractiveness of general practice, *Gesundheitswesen*, **70**: 123-8.

Bunker, J. & Shadbolt, N. (2009), Choosing general practice as a career - the influences of education and training, *Australian Family Physician*, **38**: 341-4.

Burack, J. H., Irby, D. M., Carline, J. D., Ambrozy, D. M., Ellsbury, K. E. & Stritter, F. T. (1997), Choosing general practice as a career - the influences of education and training, *Academic Medicine*, **72**: 534-41.

Campos-Outcalt, D. & Senf, J. (1999), A longitudinal, national study of the effect of implementing a required third-year family practice clerkship or a department of family medicine on the selection of family medicine by medical students, *Academic Medicine*, **74**: 1016-20.

Campos-Outcalt, D., Senf, J. & Kutob, R. (2003), Comments heard by US medical students about family practice, *Family Medicine,* **35**: 573-8.

Campos-Outcalt, D., Senf, J. & Kutob, R. (2004), A comparison of primary care graduates from schools with increasing production of family physicians to those from schools with decreasing production, *Family Medicine,* **36**: 260-4.

Campos-Outcalt, D., Senf, J., Pugno, P. A. & McGaha, A. L. (2007), Family medicine specialty selection: a proposed research agenda, *Family Medicine,* **39**: 585-9.

Centre for Workforce Intelligence (2010), Recommendations for General Practice training 2011. http://www.cfwi.org.uk/intelligence/cfwi-medical-summary-sheets/recommendation-for-general-practice-training-2011 Accessed 18/09/2010

Chambers, R., Mohanna, K., Thornett, A. & Baker, M. (2003), Changing the culture to support doctors' careers, *British Medical Journal,* **326**: s193-4.

Chartrand, J.M., Robbins, S.B., Morrill, W.H. & Boggs, K. (1990), Development and validation of the Career Factors Inventory, *Journal of Counseling Psychology,* **37**(4): 491-501.

Chartrand, J. M.., Rose, M. L., Elliott, T. R., Marmarosh, C. & Caldwell, (1993), peeling back the onion: Personality, problem solving, and career decision making style correlates of career indecision, *Journal of Career Assessment,* **1**: 66-82.

Chew-Graham, C.A., May, C.R. & Perry, M.S. (2002), Qualitative research and the problems of judgment lessons from fellow professionals, *Family Practice,* **19**: 285-289.

Collins, J., (2010), Foundation for excellence. An evaluation of the foundation programme.http://www.mee.nhs.uk/pdf/401339_MEE_FoundationExcellence_acc.pdf Accessed 12/11/10.

Colquitt, W. L., Zeh, M. C., Killian, C. D. & Cultice, J. M. (1996), Effect of debt on U.S. medical school graduates' preferences for family medicine, general internal medicine, and general pediatrics, *Academic Medicine*, **71**: 399-411.

Creed, P. A., Searle, J. & Rogers, M. E. (2010), Medical specialty prestige and lifestyle preferences for medical students, *Social Science & Medicine,* 71: 1084- 1088

Davidson, J. M., Lambert, T. W. & Goldacre, M. J. (1998), Career pathways and destinations 18 years on among doctors who qualified in the United Kingdom in 1977: postal questionnaire survey, *British Medical Journal,* **317**: 1425-8.

Davidson, J. M., Lambert, T. W., Goldacre, M. J. & Parkhouse, J. (2002), UK senior doctors' career destinations, job satisfaction, and future intentions: questionnaire survey, *British Medical Journal,* **325**: 685-6.

DeForge, B. R., Richardson, J. P. & Stewart, D. L. (1993), Attitudes of graduating seniors at one medical school toward family practice, *Family Medicine,* **25**: 111-3.

Del Mar, C. B., Freeman, G. K. & Van Weel, C. (2003), "Only a GP": is the solution to the general practice crisis intellectual. *Medical Journal of Australia,* **179**: 26-9.

Department of Health and Social Security, (1980), Report of the medical manpower steering group, London: HMSO.

Department of Health, (1994), Statistical bulletin 1994/4: statistics for general medical practitioners in England, 1983-1993. London: Department of Health.

Department of Health, (2002), Unfinished business: proposals for reform of the Senior House Officer Grade. A report by Sir Liam Donaldson, Chief Medical Officer for England, London: Department of Health.

Department of Health, (2003a), Unfinished business: proposals for reform of the Senior House Officer Grade – responses to consultation exercise in England, London: Department of Health.

Department of Health, (2003b), Modernising Medical Careers; the Response of the Four UK Health Ministers to the Consultation on Unfinished Business: proposals for reform of the Senior House Officer Grade, London: Department of Health.

Department of Health, (2004a), The Next Steps—the Future Shape of Foundation, Specialist and General Practice Training Programmes, London: Department of Health.

Department of Health, (2004b), Statistical bulletin 2004/03: statistics for general medical practitioners in England. 1993-2003, London: Department of Health.

Department of Health, (2005), Modernising Medical Careers; operational framework for foundation training, London: Department of Health.

Department of Health, (2006), Our health, our care, our say: a new direction for community services White Paper, London: Department of Health.

Dewhurst, G., Shaw, P. & Wood, D. (2006), An evaluation of four foundation programme pilots in the Kent, Surrey and Sussex Deanery, *British Journal of Hospital Medicine (London),* **67**: 36-9.

Dillner, L. (1993), Senior house officers: the lost tribes, *British Medical Journal,* **307**: 1549-51.

Drinkwater, J., Tully, M. P. & Dornan, T. (2008), The effect of gender on medical students' aspirations: a qualitative study, *Medical Education,* **42**: 420-6.

Ebell, M. H. (2008), Future salary and US residency fill rate revisited, *Journal of the American Medical Association,* **300**: 1131-2.

Edwards, C., Lambert, T. W., Goldacre, M. J. & Parkhouse, J. (1997), Early medical career choices and eventual careers, *Medical Education,* **31**: 237-42.

Elwyn, G. J., Smail, S. A. & Edwards, A. G. (1998), Is general practice in need of a career structure, *British Medical Journal,* **317**: 730-3.

Eraut, M. (2008), Evaluation of the Introduction of the Intercollegiate Surgical Curriculum Programme, http://www.mee.nhs.uk/pdf/FinalReportISCP%20-%20MichaelEraut.pdf Accessed 23/12/10

Evans, J., Goldacre, M. J. & Lambert, T. W. (2000), Views of UK medical graduates about flexible and part-time working in medicine: a qualitative study, *Medical Education,* **34**: 355-62.

Evans, J., Lambert, T. & Goldacre, M. (2002), GP recruitment and retention: a qualitative analysis of doctors' comments about training for and working in general practice, *Occasional Paper Royal College of General Practitioners,* iii-vi, 1-33.

Fairhurst, K. & May, C. (2006), What general practitioners find satisfying in their work: implications for health care system reform, *Annals of Family Medicine,* **4**: 500-5.

Farmer, J., Currie, M., West, C., Hyman, J. & Arnott, N. (2009), Evaluation of Physician Assistants to NHS Scotland, UHI Millenium Institute. http://www.abdn.ac.uk/crh/uploads/files/PA%20Final%20report%20Jan%2009%20version%205.pdf Accessed 24th October 2010.

Feldman, K., Woloschuk, W., Gowans, M., Delva, D., Brenneis, F., Wright, B. & Scott, I. (2008), The difference between medical students interested in rural family medicine versus urban family or specialty medicine, *Canadian Journal of Rural Medicine,* **13**: 73-9.

Ferguson, E., James, D. & Madeley, L. (2002), Factors associated with success in medical school: systematic review of the literature, *British Medical Journal*, **324**: 952-7.

French, F., Andrew, J., Awramenko, M., Coutts, H., Leighton-Beck, L., Mollison, J., Needham, G., Scott, A. & Walker, K. (2006), Why do work patterns differ between men and women GPs? *Journal of Health Organisation and Management,* **20**: 163-72.

French, F. D. (1981), The financial indebtedness of medical-school graduates, *New England Journal of Medicine,* **304**: 563-5.

Gale, R. & Grant, J. (2002), Sci45: the development of a specialty choice inventory. *Medical Education,* **36**: 659-66.

Gallen, D. & Peile, E. (2004), A firm foundation for senior house officers, *British Medical Journal*, **328**: 1390-1.

Geertsma, R. H. & Romano, J. (1986), Relationship between expected indebtedness and career choice of medical students, *Journal of Medical Education,* **61**: 555-9.

Gelatt, H. B. (1989), Positive uncertainty: A new decision-making framework for counseling, *Journal of Counseling Psychology*, **36**(2): 252-256.

Goldacre, M. J. & Lambert, T. W. (2000), Stability and change in career choices of junior doctors: postal questionnaire surveys of the United Kingdom qualifiers of 1993, *Medical Education,* **34**: 700-7.

Goldacre, M. J., Davidson, J. M. & Lambert, T. W. (2007), Career preferences of graduate and non-graduate entrants to medical schools in the UK, *Medical Education*, **41**: 349-61.

Goldacre, M.J., Laxton, L. & Lambert, T. W. (2010), Medical graduates' early career choices of specialty and their eventual specialty destinations: UK prospective cohort studies, *British Medical Journal,* **341**: c3199.

Gorenflo, D. W., Ruffin, M. T. & Sheets, K. J. (1994), A multivariate model for specialty preference by medical students, *Journal of Family Practice,* **39**: 570-6.

Hafferty, F. W. (1998), Beyond curriculum reform: confronting medicine's hidden curriculum, *Academic Medicine,* **73**: 403-7.

Halpern, S. D., Ubel, P. A., Berlin, J. A. & Asch, D. A. (2002), Randomized trial of 5 dollars versus 10 dollars monetary incentives, envelope size, and candy to increase physician response rates to mailed questionnaires, *Medical Care,* **40**: 834-9.

Harren, V. A. (1979), A model of career decision making for college students, *Journal of Vocational Behavior,* **14**(2): 119-133.

Harrington, T. F. (1986), The construct validity of the career decision-making system cross culturally, *International Journal for the Advancement of Counseling,* **9**(4): 331-339.

Harris, M. G., Gavel, P. H. & Young, J. R. (2005), Factors influencing the choice of specialty of Australian medical graduates, *Medical Journal of Australia,* **183**: 295-300.

Hasler, L. B., Stamm, M. & Buddeberg-Fischer, B. (2008), Future family physicians - reasons for their specialty choice and crucial professional skills, *Praxis (Bern 1994),* **97**: 1277-85.

Hayden, J., Styles, W.McN., Grant, J. & Mountford, B. (1996), Developing vocational training for British general practice: a system for the future, *Education for General Practice,* **7**: 1-7.

Heiliger, P. J. & Hingstman, L. (2000), Career preferences and the work-family balance in medicine: gender differences among medical specialists, *Social Science and Medicine,* **50**: 1235-46.

Hemsley-Brown, J. & Foskett N. (1999), Gambling in the careers lottery: a consumer approach to career choice? *Journal of Vocational Education and Training,* **51**(3): 421-435.

Henderson, E., Berlin, A. & Fuller, J. (2002), Attitude of medical students towards general practice and general practitioners, *British Journal of General Practice,* **52**: 359-63.

Henderson, M. C., Hunt, D. K. & Williams, J. W., Jr. (1996), General internists influence students to choose primary care careers: the power of role modeling, *American Journal of Medicine,* **101**: 648-53.

Hodkinson, P. (1995), How young people make career decisions, *Education & Training,* **37**(8): 3.

Holland, J. L. (1959), A theory of vocational choice, *Journal of Counseling Psychology,* **6**(1): 35-45.

Hooker, R.S., Hogan, K. & Leeker, E. (2007), The globalization of the physician assistant profession. *Journal of Physician Assistant Education,* **18**(3): 76-85

House of Commons, (1981), Medical education, with special reference to the number of doctors in the career structure in hospitals, Fourth report of the social services committee. Chairman: Short, R. London: HMSO.

Horowitz, C. R., Suchman, A. L., Branch, W. T., Jr. & Frankel, R. M. (2003), What do doctors find meaningful about their work? *Annals of Internal Medicine,* **138**: 772-5.

Howe, A. & Ives, G. (2001), Does community-based experience alter career preference? New evidence from a prospective longitudinal cohort study of undergraduate medical students, *Medical Education,* **35**: 391-7.

Hueston, W. (2009), Future salary and medical student specialty choice, *Journal of the American Medical Association,* **301**: 826; author reply 826.

Hunt, D. D., Scott, C., Zhong, S. & Goldstein, E. (1996), Frequency and effect of negative comments ("badmouthing") on medical students' career choices, *Academic Medicine,* **71**: 665-9.

Hutchinson, L., Marks, T. & Pittilo, M. (2001), The physician assistant: would the US model meet the needs of the NHS? *British Medical Journal,* **323**: 1244-1247.

Information Centre (2008), NHS Hospital and Community Health Services: Medical and Dental staff England 1997-2007. http//www.ic.nhs.uk Accessed 17 May 2009.

Information Centre (2009a), NHS Hospital and Community Health Services: Medical and Dental staff England 1999-2009, http://www.ic.nhs.uk/webfiles/publications/workforce/nhsstaff9909/Medical_Dental_Bulletin_1999_2009.pdf Accessed 30 December 2010.

Information Centre (2009b), General and Personal Medical Services England 1999-2009, http://www.ic.nhs.uk/webfiles/publications/workforce/nhsstaff9909/General_Practice_Bulletin_1999_2009.pdf Accessed 30 December 2010.

Irish, B, Munro, N, & Plint S. (2010), Medical careers and societal needs, http://careers.bmj.com/careers/advice/view-article.html?id=20001362 Accessed 4/9/10

Jeffe, D. B., Whelan, A. J. & Andriole, D. A. (2010), Primary care specialty choice of United States Medical Graduates, 1997-2006, *Academic Medicine,* **85**: 947-958.

Johnson, N., Hasler, J., Mant, D., Randall, T., Jones, L. & Yudkin, P. (1993), General practice careers: changing experience of men and women vocational trainees between 1974 and 1989, *British Journal of General Practice,* **43**: 141-5.

Johnson, N., Hasler, J., Hayden, J., Mathie, T. & Dobbie, W. (1998), The career outcomes for doctors completing general practice vocational training 1990-1995, *British Journal of General Practice,* **48**: 1755-8.

Jones, L. & Fisher, T. (2006), Workforce trends in general practice in the UK: results from a longitudinal study of doctors' careers, *British Journal of General Practice,* **56**: 134-6.

Joyce, C. M. & McNeil, J. J. (2006), Fewer medical graduates are choosing general practice: a comparison of four cohorts, 1980-1995, *Medical Journal of Australia,* **185**: 102-4.

Kahn, M. J., Markert, R. J., Lopez, F. A., Specter, S., Randall, H. & Krane, N. K. (2006), Is medical student choice of a primary care residency influenced by debt? http://www.ncbi.nlm.nih.gov/pmc/articles/PMC1868367/ Accessed 17 November 2008.

Kahn, N. B., Jr., Schmittling, G. & Graham, R. (1994), Entry of US medical school graduates into family practice residences: 1993-1994 and 3-year summary, *Family Medicine,* **26**: 478-86.

Kamien, B. A., Bassiri, M. & Kamien, M. (1999), Doctors badmouthing each other. Does it affect medical students' career choices, *Australian Family Physician,* **28**: 576-9.

Kassebaum, D. G. & Szenas, P. L. (1993), Relationship between indebtedness and the specialty choices of graduating medical students: 1993 update, *Academic Medicine,* **68**: 934-7.

Kassebaum, D. G., Szenas, P. L. & Schuchert, M. K. (1996), Determinants of the generalist career intentions of 1995 graduating medical students, *Academic Medicine,* **71**: 198-209.

Kelly, D. R. & Murray, T. S. (1991), Twenty years of vocational training in the west of Scotland, *British Medical Journal,* **302**: 28-30.

Krieshok, T. S. (2001), How the decision-making literature might inform career center practice, *Journal of Career Development,* **27**(3): 207-216.

Lambert, T. W., Goldacre, M. J., Edwards, C. & Parkhouse, J. (1996), Career preferences of doctors who qualified in the United Kingdom in 1993 compared with those of doctors qualifying in 1974, 1977, 1980, and 1983, *British Medical Journal,* **313**: 19-24.

Lambert T.W. & Goldacre M.J., (1998), Career destinations seven years on among doctors who qualified in the United Kingdom in 1998: postal questionnaire survey, *British Medical Journal,* **317**: 1429-31.

Lambert, T. W., Goldacre, M. J., Davidson, J. M. & Parkhouse, J. (2001), Graduate status and age at entry to medical school as predictors of doctors' choice of long-term career, *Medical Education,* **35**: 450-4.

Lambert, T. W., Evans, J. & Goldacre, M. J. (2002), Recruitment of UK-trained doctors into general practice: findings from national cohort studies, *British Journal of General Practice,* **52**: 364-7, 369-72.

Lambert, T. W., Davidson, J. M., Evans, J. & Goldacre, M. J. (2003a), Doctors' reasons for rejecting initial choices of specialties as long-term careers, *Medical Education,* **37**: 312-8.

Lambert, T. W., Goldacre, M. J. & Turner, G. (2003b), Career choices of United Kingdom medical graduates of 1999 and 2000: questionnaire surveys, *British Medical Journal,* **326**: 194-5.

Lambert, T. W., Goldacre, M. J. & Turner, G. (2006), Career choices of United Kingdom medical graduates of 2002: questionnaire survey, *Medical Education,* **40**: 514-21.

Lambert, T. W. & Goldacre, M. J. (2007), Views of doctors in training on the importance and availability of career advice in UK medicine, *Medical Education,* **41**: 460-6.

Lawrence, J., Poole, P. & Diener, S. (2003), Critical factors in career decision making for women medical graduates, *Medical Education,* **37**: 319-27.

Lefford, F. (1987), Women doctors: a quarter-century track record, *Lancet,* **1**: 1254-6.

Levenstein, J. H., McCracken, E. C., McWhinney, I. R., Stewart, M. A. & Brown, J. B. (1986), The patient-centred clinical method. 1. A model for the doctor-patient interaction in family medicine, *Family Practice,* **3**: 24-30.

Levinson, W. & Lurie, N. (2004), When most doctors are women: what lies ahead? *Annals of Internal Medicine,* **141**: 471-4.

Lievens, F., Coetsier, P., De Fruyt, F. & De Maeseneer, J. (2002), Medical students' personality characteristics and academic performance: a five-factor model perspective, *Medical Education,* **36**: 1050-6.

Lloyd, J. R. & Leese, B. (2006), Career intentions and preferences of GP registrars in Yorkshire, *British Journal of General Practice,* **56**: 280-2.

Lu, D. J., Hakes, J., Bai, M., Tolhurst, H. & Dickinson, J. A. (2008), Rural intentions: factors affecting the career choices of family medicine graduates, *Canadian Family Physician,* **54**: 1016-1017 e5.

Lydall, G. J., Malik, A. & Bhugra, D. (2007), MTAS: Mental health of applicants seems to be deteriorating, *British Medical Journal,* **334**: 1335.

Macinko, J., Starfield, B. & Shi, L. (2007), Quantifying the health benefits of primary care physician supply in the United States, *International Journal of Health Services,* **37**: 111-26.

MacKean, P. & Gutkin, C. (2003), Fewer medical students selecting family medicine, Can family practice survive, *Canadian Family Physician,* **49**: 408-9, 415-7.

Madden, G. B. & Madden, A. P. (2007), Has Modernising Medical Careers lost its way? *British Medical Journal,* **335**: 426-8.

Mahoney, R., Katona, C., McParland, M., Noble, L. & Livingston, G. (2004), Shortage specialties: changes in career intentions from medical student to newly qualified doctor, *Medical Teacher,* **26**: 650-4.

Maiorova, T., Stevens, F., Scherpbier, A., van der Velden, L. & van der Zee, J. (2005), Gender-related differences in general practice preferences: longitudinal evidence from the Netherlands 1982-2001, *Health Policy,* **72**: 73-80.

Maiorova, T., Stevens, F., Scherpbier, A. & van der Zee, J. (2008a), The impact of clerkships on students' specialty preferences: what do undergraduates learn for their profession? *Medical Education,* **42**: 554-62.

Maiorova, T., Stevens, F., van der Zee, J., Boode, B. & Scherpbier, A. (2008b), Shortage in general practice despite the feminisation of the medical workforce: a seeming paradox? A cohort study http://www.biomedcentral.com/1472-6963/8/262 Accessed 19 January 2009.

Malterud K. (1993), Shared understandings of the qualitative research process. Guidelines for the medical researcher, *Family Practice,* **10**: 201-206.

Manca, D. P., Varnhagen, S., Brett-MacLean, P., Allan, G. M., Szafran, O., Ausford, A., Rowntree, C., Rumzan, I. & Turner, D. (2007), Rewards and challenges of family practice: Web-based survey using the Delphi method, *Canadian Family Physician,* **53**: 278-86, 277.

Mann, M. P. (1994), Attitudes toward and subsequent career choice of family practice: a weak relationship, *Family Medicine,* **26**: 504-8.

Markert, R. J. (1991), Why medical students change to and from primary care as career choice, *Family Medicine,* **23**: 347-50.

Markert, R. J., Rodenhauser, P., El-Baghdadi, M. M., Juskaite, K., Hillel, A. T. & Maron, B. A. (2008), Personality as a prognostic factor for specialty choice: a prospective study of 4 medical school classes, http://www.ncbi.nlm.nih.gov/pmc/articles/PMC2270893/?tool=pubmed Accessed 15 November 2008.

McAuliffe, G. J. (1992), Assessing and changing career decision-making self efficacy expectations, *Journal of Career Development,* **19**(1): 25-36.

McDougle, L., Gabel, L. L. & Stone, L. (2006), Future of family medicine workforce in the United States, *Family Practice,* **23**: 8-9.

McKee, N. D., McKague, M. A., Ramsden, V. R. & Poole, R. E. (2007), Cultivating interest in family medicine: family medicine interest group reaches undergraduate medical students, *Canadian Family Physician,* **53**: 661-5.

McKinstry, B., Colthart, I., Elliott, K. & Hunter, C. (2006), The feminization of the medical work force, implications for Scottish primary care: a survey of Scottish general practitioners, http://www.biomedcentral.com/1472-6963/6/56 Accessed 21 November 2008.

McManus, I. C. (1982), The social class of medical students, *Medical Education,* **16:** 72-5.

McManus, I. C., Richards, P., Winder, B. C. & Sproston, K. A. (1998), Women in hospital medicine in the United Kingdom: glass ceiling, preference, prejudice or cohort effect, *British Medical Journal,* **316**: 345-50.

McManus, I. C. & Sproston, K. A. (2000), Women in hospital medicine in the United Kingdom: glass ceiling, preference, prejudice or cohort effect, *Journal of Epidemiology & Community Health,* **54**: 10-6.

McManus, I. C., Smithers, E., Partridge, P., Keeling, A. & Fleming, P. R. (2003), A levels and intelligence as predictors of medical careers in UK doctors: 20 year prospective study, *British Medical Journal,* **327**: 139-42.

McManus, I. C., Livingston, G. & Katona, C. (2006), The attractions of medicine: the generic motivations of medical school applicants in relation to demography, personality and achievement, http://www.biomedcentral.com/1472-6920/6/11 Accessed 14 November 2008.

Meurer, L. N. (1995), Influence of medical school curriculum on primary care specialty choice: analysis and synthesis of the literature, *Academic Medicine,* **70**: 388-97.

Miller, M. J. & T. A. Miller (2005), Theoretical Application of Holland's Theory to Individual Decision-Making Styles: Implications for Career Counselors, *Journal of Employment Counseling* **42**(1): 20-28.

Ministry of Health (1957), Report of the committee to consider the future numbers of medical practitioners and the appropriate intake of medical students, (Chairman: Sir Henry Willink). London, HMSO.

Misch, A.D. (2002), Andragogy and medical education: are medical students internally motivated to learn? *Advances in Health Sciences Education* **7:** 153-160.

Morra, D. J., Regehr, G. and Ginsburg, S. (2009), Medical students, money, and career selection: students' perception of financial factors and remuneration in family medicine, *Family Medicine,* **41**: 105-10.

Morrison, J. M. & Murray, T. S. (1996), Career preferences of medical students: influence of a new four-week attachment in general practice, *British Journal of General Practice,* **46**: 721-5.

Myerson N. (2003), Do school exams predict doctors' success? Career achievements are not only measure, *British Medical Journal,* **327**(7418): 810.

Myerson S. (1990), Investigating stresses in general practice using open ended approach in interviews, *Family Practice,* **7**: 91-95.

Nabi, G., Holden, R. & Walmsley, A. (2006), Graduate career-making and business start- up: a literature review, *Education + Training,* **48**: 373-385.

Neville, E. (2003), Modernising medical careers, *Clinical Medicine,* **3**: 529-31.

Noble, J. & Baerlocher, M. O. (2006), Future practice profiles of Canadian medical trainees, *Clinical and Investigative Medicine,* **29**: 208-9.

Nursing & Midwifery Council (2005), Implementation of a Framework for the Standard for Post Registration Nursing-Decision, Agendum 27.1 December 2005/c/05/160. London, NMC.

Osler, K. (1991), Employment experiences of vocationally trained doctors, *British Medical Journal,* **303**: 762-4.

Pas, B. R., Lagro-Janssen, A. L., Doorewaard, J. A., Eisinga, R. N. & Peters, C. P. (2008), Gender differences in career motivation: female doctors' ambitions benefit from family friendly work environment, *Ned Tijdschr Geneeskd,* **152**: 2172-6.

Peile, E. & Carter, Y. (2005), Selecting and supporting contented doctors, *British Medical Journal,* **330**: 269-70.

Petchey, R., Williams, J. & Baker, M. (1997), 'Ending up a GP': a qualitative study of junior doctors' perceptions of general practice as a career, *Family Practice,* **14**: 194-8.

Poole, P., McHardy, K. & Janssen, A. (2008), General physicians: born or made? The use of a tracking database to answer medical workforce questions, *Internal Medicine Journal*, **39**(7): 447-452.

Pretorius, R. W., Milling, D. A. & McGuigan, D. (2008), Influence of a rural background on a medical student's decision to specialize in family medicine, *Rural Remote Health*, **8**: 928.

Pryor, R. & J. Bright (2003), Order and chaos: a twenty-first century formulation of careers, *Australian Journal of Psychology*, **55**: 121-128.

Pugno, P. A., McGaha, A. L., Schmittling, G. T., DeVilbiss, A. & Kahn, N. B., Jr. (2007), Results of the 2007 National Resident Matching Program: family medicine, *Family Medicine*, **39**: 562-71.

Pugno, P. A., McGaha, A. L., Schmittling, G. T., DeVilbiss, A. & Ostergaard D. J. (2009), Results of the 2009 national resident matching program: family medicine, *Family Medicine*, **41**(8): 567-77.

Pyskoty, C. E., Byrne, T. E., Charles, S. C. & Franke, K. J. (1990), Malpractice litigation as a factor in choosing a medical specialty, *Western Journal of Medicine*, **152**: 309-12.

Rabinowitz, H. K. (1999a), A program to increase the number of family physicians in rural and underserved areas: impact after 22 years, *Academic Medicine*, **74**: S39-44.

Rabinowitz, H. K., Diamond, J. J., Markham, F. W. & Hazelwood, C. E. (1999b), Who is a generalist? An analysis of whether physicians trained as generalists practice as generalists, *Journal of the American Medical Association*, **281**: 255-60.

Radadan, F.E. & Hidalgo, J.L. (2010), Changes in the knowledge of and attitudes toward family medicine after completing a primary care course, *Family Medicine*, **2**(1): 35-40.

Rhodes, P. (1983), Choosing to become a general practitioner, *British Medical Journal,* **286:** 37-8.

Rhodes, P. J. (1989), The career aspirations of women doctors who qualified in 1974 and 1977 from a United Kingdom medical school. *Medical Education,* **23**: 125-35.

Rosenblatt, R. A. & Andrilla, C. H. (2005), The impact of U.S. medical students' debt on their choice of primary care careers: an analysis of data from the 2002 medical school graduation questionnaire, *Academic Medicine,* **80**: 815-9.

Rourke, J. (2008), The ideal family physician: W. Victor Johnston oration to the College of Family Physicians of Canada, Convocation, Winnipeg, Man, October 2007, *Canadian Family Physician*, **54**: 18-21.

Rowsell, R., Morgan, M. & Sarangi, J. (1995), General practitioner registrars' views about a career in general practice, *British Journal of General Practice,* **45**: 601-4.

Schafer, S., Shore, W., French, L., Tovar, J., Hughes, S. & Hearst, N. (2000), Rejecting family practice: why medical students switch to other specialties, *Family Medicine,* **32**: 320-5.

Scott, I., Wright, B., Brenneis, F., Brett-Maclean, P. & McCaffrey, L. (2007a), Why would I choose a career in family medicine? Reflections of medical students at 3 universities, *Canadian Family Physician*, **53**: 1956-7.

Scott, I., Gowans, M. C., Wright, B. & Brenneis, F. (2007b), Why medical students switch careers: changing course during the preclinical years of medical school, *Canadian Family Physician,* **53**: 95, 95:e 1-5, 94.

Scott, I. M., Matejcek, A. N., Gowans, M. C., Wright, B. J. & Brenneis, F. R. (2008), Choosing a career in surgery: factors that influence Canadian medical students' interest in pursuing a surgical career, *Canadian Journal of Surgery*, **51**: 371-7.

Scott, I. M., Gowans, M., Wright, B., Brenneis, F.R., Banner, S. & Boone, J. (2010), Determinants of choosing a career in family medicine, *Canadian Medical Association Journal,* DOI:10.1503/cmaj.091805.

Senf, J. H., Campos-Outcalt, D., Watkins, A. J., Bastacky, S. & Killian, C. (1997), Reasons for choice of family practice are debated, *Academic Medicine,* **72**: 524-33.

Senf, J. H., Campos-Outcalt, D. & Kutob, R. (2003), Factors related to the choice of family medicine: a reassessment and literature review, *Journal of the American Board of Family Practice,* **16**: 502-12.

Shadbolt, N. & Bunker, J. (2009), Choosing general practice: a review of career choice determinants, *Australian Family Physician,* **38**: 53-5.

Shannon, C. (2007), MTAS--where are we now, *British Medical Journal,* **334**: 824-5.

Sharu, D. (2007), *Learning in the Workplace: A Study of Primary health Care Nurse Practitioners in Their First Year of Postgraduate Employment,* unpublished DPhil thesis, University of Sussex.

Shaw, H. E. (1979), The careers of women graduates from St Mary's Hospital Medical School, London, 1961—72, *Medical Education,* **13**: 275-83.

Sinclair, H. K., Ritchie, L. D. & Lee, A. J. (2006), A future career in general practice. A longitudinal study of medical students and pre-registration house officers, *European Journal of General Practice,* **12**: 120-7.

Soethout, M. B., Heymans, M. W. & Cate, O. T. (2008), Career preference and medical students' biographical characteristics and academic achievement, *Medical Teacher,* **30**: 15-22.

Starfield B. (1991), Primary care and health. A cross-national comparison, *Journal of the American Medical Association*, 226: 2268–2271.

Starfield, B. & Shi, L. (2002), Policy relevant determinants of health: an international perspective, *Health Policy,* **60**: 201-18.

Steadman, S. (2009), Personal communication.

Steinbrook, R. (2009), Easing the shortage in adult primary care--is it all about money? *New England Journal of Medicine,* **360**: 2696-9.

Streit, U. (1980), Attitudes towards psycho-social factors in medicine: an appraisal of the ATSIM scale, *Medical Education,* **14,** 259-66.

Sullivan, P. (2003), Internists worried as concern about general medicine's future spreads, *Canadian Medical Association Journal,* **168**: 881-2.

Taylor, K. S., Lambert, T. W. & Goldacre, M. J. (2009), Career progression and destinations, comparing men and women in the NHS: postal questionnaire surveys, *British Medical Journal,* **338**: b1735.

Tesch, B. J., Wood, H. M., Helwig, A. L. & Nattinger, A. B. (1995), Promotion of women physicians in academic medicine; glass ceiling or sticky floor? *Journal of the American Medical Association,* **273**: 1022-5.

Thistlethwaite, J., Kidd, M. R., Leeder, S., Shaw, T. & Corcoran, K. (2008a), Enhancing the choice of general practice as a career, *Australian Family Physician,* **37**: 964-8.

Thistlethwaite, J. E., Leeder, S. R., Kidd, M. R. & Shaw, T. (2008b), Addressing general practice workforce shortages: policy options, *Medical Journal of Australia,* **189**: 118-21.

Thomas, R. (2008), How do doctors choose their specialty: first love, arranged marriage or second time around? And how may an affair with MMS change this? *Clinical Medicine,* **8**: 490-2.

Todisco, J., Hayes, S. & Farnill, D. (1995), Career motivations of male and female medical students, *Psychological Reports,* **77**: 1199-202.

Tolhurst, H. & Stewart, M. (2005), Becoming a GP--a qualitative study of the career interests of medical students, *Australian Family Physician,* **34**: 204-6.

Tsouroufli, M. & Payne, H. (2008), Consultant medical trainers, modernising medical careers (MMC) and the European time directive (EWTD): tensions and challenges in a changing medical education context, http://www.biomedcentral.com/1472-6920/8/31 Accessed 16 November 2008.

Tsukioka, B. & Cattell, R. B. (1965), Constancy and difference in personality structure and mean profile, in the questionnaire medium, from applying the 16 P.F. test in America and Japan, *British Journal of Social and Clinical Psychology,* **4**: 287-97.

United Kingdom Foundation Programme Office (2009), http://www.foundationprogramme.nhs.uk/news/story/careers-conference-success Accessed 17 February 2010.

van Offenbeek, M. A., Kiewet, D. J. & Oosterhuis, M. J. (2006), The compatibility of future doctors' career intentions with changing health care demands, *Medical Education*, **40**: 530-538.

Vaughan, C. (1995), Career choices for generation X, *British Medical Journal,* **311**: 525-6.

Walker, H. K. (2006), Primary care is dying in the United States: mutatis mutandis, *Medical Education,* **40**: 9-11.

Ward, A. M., Kamien, M. & Lopez, D. G. (2004), Medical career choice and practice location: early factors predicting course completion, career choice and practice location, *Medical Education,* **38**: 239-48.

Ward, A. W. (1982), Careers of medical women, *British Medical Journal*, **284**: 31-3.

Watmough, S., Taylor, D. & Ryland, I. (2007), Using questionnaires to determine whether medical graduates' career choice is determined by undergraduate or postgraduate experiences, *Medical Teacher,* **29**: 830 - 832.

Wilson, M. & Cleland, J. (2008), Evidence for the acceptability and academic success of an innovative remote and rural extended placement, *Rural Remote Health,* **8**: 960.

WONCA Europe (2002), European Definition of General Practice/Family Medicine, (WONCA Europe), http://www.woncaeurope.org/Definition%20GP-FM.htm Accessed 16 November 2008

Woodcock, I. (2006), Foundation year 2: changing attitudes towards general practice, *British Journal of General Practice,* **56**: 895.

Wright, B., Scott, I., Woloschuk, W., Brenneis, F. & Bradley, J. (2004), Career choice of new medical students at three Canadian universities: family medicine versus specialty medicine, *Canadian Medical Association Journal,* **170**: 1920-4.

Young, R. & Leese, B. (1999), Recruitment and retention of general practitioners in the UK: what are the problems and solutions, *British Journal of General Practice,* **49**: 829-33.

Zarkovic, A., Child, S. & Naden, G. (2006), Career choices of New Zealand junior doctors, *New Zealand Medical Journal,* **119**: U1851.

Zhou, X. (2005), The institutional logic of occupational prestige ranking; reconceptualization and reanalyses, *American Journal of Sociology,* **111**: 90-140.

Zinn, W. M., Sullivan, A. M., Zotov, N., Peters, A. S., Connelly, M. T., Singer, J. D. and Block, S. D. (2001), The effect of medical education on primary care orientation: results of two national surveys of students' and residents' perspectives, *Academic Medicine*, **76**: 355-65.

APPENDICES

Contents

APPENDIX A

Sussex School of Education,
The Sussex Institute,
University of Sussex,
Falmer,
Brighton,
BN1 9QQ

NEW F2 DOCTOR

Dear Colleague

GENERAL PRACTICE ATTACHMENT IN F2: INFLUENCE ON FUTURE CAREER INTENT

I am a general practice trainer looking at whether attachments in general practice early on in a doctor's career influence later career choices. It is important that your views, as participants in foundation year 2 programmes within Kent, Surrey and Sussex Deanery, are taken into account in order that the future needs of young doctors in training are met. I would very grateful for your input into this research.

I enclose a standardized questionnaire (Sci 45) which is designed to measure career intent among doctors. It should take about 20 minutes to complete. You will be sent the questionnaire again after your attachment and finally one year later. Your contributions will be of great value in determining the effectiveness of these attachments.

Your questionnaire is identifiable in order to track response rates and ensure appropriate follow up. Your answers, however, will be anonymised and your details kept on a separate database. Your identity will not be known by the Deanery or university staff

I would be grateful if you could complete the details requested on the front page of the Sci 45 questionnaire, ring your preferred options on the questionnaire itself, sign both copies of the consent forms and return the questionnaire and one copy of the consent form in the envelope provided.

I hope you feel able to help in this important study. If you have any questions please do not hesitate to contact me on 01372 467657 (S), 07776181505 (M) or email: neil.m.munro@btinternet.com.

Dr Neil Munro MMEd FRCGP
GP Trainer, Claygate

Encl: Participation Information Sheet
2 copies of Consent Forms
Sci 45 questionnaire
Return envelope

Sussex School of Education,
The Sussex Institute,
University of Sussex,
Falmer,
Brighton,
BN1 9QQ

PARTICIPATION INFORMATION SHEET
(QUESTIONNAIRE)

1. Study title

POSTGRADUATE ATTACHMENT TO GENERAL PRACTICE; INFLUENCE ON FUTURE CAREER INTENTIONS

2. Invitation paragraph

Thank you for reading this sheet. You are being invited to take part in a research study. Before you decide it is important that you understand why the research is being conducted and what participation will mean. Please take time to read the following information and consider whether or not you wish to take part. We will be happy to provide any other information you may require.

3. What is the purpose of the study?

The purpose of this study is to determine what influence a period of placement in general practice during the second foundation year has on career intention among doctors undergoing postgraduate medical training. This will be achieved through a combination of face to face and telephone interviews, focus groups and questionnaire responses. This work has been commissioned by, and will be carried out within, Kent, Surrey and Sussex (KSS) Postgraduate Deanery.

4. Why have I been chosen?

You have been chosen because you have enrolled in a foundation programme within the KSS Deanery. Your contribution, by completion of a questionnaire will help evaluate career intentions among doctors under going general practice attachment during the second foundation year.

5. Do I have to take part?

This is entirely voluntary. If you decide to take part you will be given this information sheet to keep and be asked to sign a consent form which you are requested to return with the completed questionnaire in the envelope provided. You can withdraw at any time without giving a reason. A decision to withdraw, or a decision not to take part, will not affect your legal rights or training in any way.

6. What will happen to me if I take part?

You will be asked to complete a questionnaire (Sci 45) before and after your general practice attachment during your second foundation year as well as a year later. This is a validated instrument that measures career intent. The questionnaire should take ten minutes to complete. Information will be entirely confidential and will be anonymised.

Sussex School of Education,
The Sussex Institute,
University of Sussex,
Falmer,
Brighton,
BN1 9QQ

7. What are the possible disadvantages or risks of taking part?

There is an opportunity to reflect on past influences in respect of career choice with the possibility of producing feelings of regret. In the event of this happening you may wish to seek advice from your local GP tutor or clinical tutor, your educational supervisor, the BMA Doctors for Doctors Unit or the BMA Counselling service. The Doctors for Doctors Unit (email: info.d4d@bma.org.uk) offers confidential support to practitioners in difficulty and has developed a resource pack as a self-help tool to aid doctors (http://www.bma.org.uk/ap.nsf/Content/Hubhealthandwellbeing). The BMA Counselling Service (08459 200169) is a 24-hours a day, 365 days a year service to help doctors and their families with work-related, emotional and personal problems.

8. What are the possible benefits of taking part? How will information be used?

There are no direct immediate benefits. However, participants will have the opportunity to reflect on their career path through completion of the questionnaire. In addition findings will inform educational planners of the impact that GP attachment during the second foundation year might have on doctors' career choice.

9. What happens when the research study stops?

Findings will be disseminated through web sites at KSS Deanery and presented in professional and academic journals. Participants will not be identified in any report or publication. It will take at least 18 months before any results are available

10. Will my taking part in this study be kept confidential?

All information which is collected about you during the course of the study will be kept strictly confidential. Any information from interviews, focus groups or questionnaires will be anonymised. Data will be stored in secure, locked cabinets and in computer files that can only be accessed by named researchers. Processing of data will comply with the Data Protection Act (1998). The data will not be sent outside the European Economic Area, or to any other location within the UK. The study is set to compete by August 2008. Data will be destroyed within 2 years of the end of the study unless the findings suggest an extension of the study period would be important – in which event your permission to continue in the study would be specifically sought in writing.

11. Who is organizing and funding the research?

This work has been commissioned by, and will be carried out within, Kent, Surrey and Sussex (KSS) Postgraduate Deanery. Dr Neil Munro is the Chief Investigator conducting this study as part of a doctorate and is supervised by Professor Michael Eraut, Chair of Research and Development Committee of the School of Education, University of Sussex. Funding for the study is through the KSS Postgraduate Deanery.

12. What if I have any concerns?

If you have any concerns or any other questions about this study, or in the way it has been carried out, you should contact the investigator Dr Neil Munro on 01372 467657 (surgery), 07776181505 (mobile), email; neil.m.munro@btinternet.com or you may contact your PCT complaints department

Sussex School of Education,
The Sussex Institute,
University of Sussex,
Falmer,
Brighton,
BN1 9QQ

CONSENT FORM: QUESTIONNAIRE

Title of Project: **POSTGRADUATE ATTACHMENT TO GENERAL PRACTICE; INFLUENCE ON FUTURE CAREER INTENTIONS**

Name of Researcher: Dr NEIL MUNRO **Please initial box**

1. I confirm that I have read and understand the information sheet (PIS Version 01a2) dated 26/06/05 for the above study and have had the opportunity to ask questions. ☐

2. I understand that my participation is entirely voluntary and that I am free to withdraw at any time, without giving any reason and without my legal rights being affected. I understand that my name or any other identifying information will not appear on any reports or publications. ☐

3. I agree to take part in the above study. ☐

_____	_____	_____
Name of Participant	Date	Signature
_____	_____	
Name of Person taking consent (if different from researcher)	Date	Signature
_____	_____	
Researcher	Date	Signature

Sussex School of Education,
The Sussex Institute,
University of Sussex,
Falmer,
Brighton,
BN1 9QQ

CONSENT FORM: QUESTIONNAIRE

Title of Project: **POSTGRADUATE ATTACHMENT TO GENERAL PRACTICE; INFLUENCE ON FUTURE CAREER INTENTIONS**

Name of Researcher: Dr NEIL MUNRO **Please initial box**

1. I confirm that I have read and understand the information sheet (PIS Version 01a2) dated 26/06/05 for the above study and have had the opportunity to ask questions. ☐

2. I understand that my participation is entirely voluntary and that I am free to withdraw at any time, without giving any reason and without my legal rights being affected. I understand that my name or any other identifying information will not appear on any reports or publications. ☐

3. I agree to take part in the above study. ☐

_____	_____	_____
Name of Participant	Date	Signature
_____	_____	_____
Name of Person taking consent (if different from researcher)	Date	Signature
_____	_____	_____
Researcher	Date	Signature

sci45 Questionnaire

INSTRUCTIONS FOR COMPLETING THIS QUESTIONNAIRE

POSTGRADUATE ATTACHMENT TO GENERAL PRACTICE; INFLUENCE ON FUTURE CAREER INTENTIONS

This questionnaire has been developed and validated by researchers at the Open University Centre for Education in Medicine. I would be grateful if you could complete all 130 items. When responding, consider what features you would like in your future job and which of your skills you want to develop.

Answer the questions by putting a circle round the choices SD, D, A or SA, where SD = Strongly Disagree, D = Disagree, A = Agree, SA = Strongly Agree. Please answer all the questions. If you are not completely sure circle the choice which seems most likely. Thank you for your participation

Dr Neil Munro, Chief Investigator

Please record the following details before completing the questionnaire

Date:…….

Name: …… **Medical school/University:……**

Address:…… **Qualification(s) and year:…….**

……. **Date of Birth:……..**

Postcode:…… **Nationality:…….**

Marital Status: Single/Married/Divorced **Dependents (+ age) ……..**

Would you be willing to be contacted for a follow up interview?
Yes/No

How would you prefer to receive your sci45 questionnaires?
Post/Email

Do you wish to receive updates on this study?
Yes/No

Telephone:…… **Email:……**

Please return this questionnaire in the envelope provided/by email (neil.m.munro@btinternet.com) or to Dr Neil Munro, Little Orchard, Reigate Road, Leatherhead, Surrey KT22 8QY

I want to work in a specialty…..

		Strongly Disagree	Disagree	Agree	Strongly Agree
1.	That requires the agreement of a team before action is taken.	SD	D	A	SA
2.	In which diagnosis and treatment can be arrived at fairly quickly.	SD	D	A	SA
3.	In which most of the patients have acute illnesses.	SD	D	A	SA
4.	In which success depends on assiduous attention to detail.	SD	D	A	SA
5.	In which a major aspect is patient education.	SD	D	A	SA
6.	That does not elevate communication skills above medical know-how.	SD	D	A	SA
7.	That involves decisions that require considerable courage.	SD	D	A	SA
8.	That is one of the larger specialties.	SD	D	A	SA
9.	Where I can display an ability to cope in a crisis.	SD	D	A	SA
10.	That depends on state-of-the-art equipment	SD	D	A	SA
11.	In which calculated risks rarely need to be taken	SD	D	A	SA
12.	That does not necessarily require a very intellectual approach.	SD	D	A	SA
13.	That is hardly ever routine.	SD	D	A	SA
14.	Where I will treat large numbers of people with relatively minor problems.	SD	D	A	SA
15.	Where I would often have to work alone with no colleagues to support me.	SD	D	A	SA
16.	That does not involve very much patient education.	SD	D	A	SA
17.	In which it is not unusual to be asked to do extra work.	SD	D	A	SA
18.	In which colleagues are rarely involved in research.	SD	D	A	SA
19.	In which there is usually a high level of certainty over diagnosis and treatment.	SD	D	A	SA
20.	That offers a quick route to the top.	SD	D	A	SA
21.	In which good medical skills can compensate for average communication skills.	SD	D	A	SA

I want to work in a specialty…..

		Strongly Disagree	Disagree	Agree	Strongly Agree
22.	In which manual dexterity is not an essential requirement.	SD	D	A	SA
23.	Where I would have to cope with bad outcomes and failed procedures.	SD	D	A	SA
24.	Where the rules and guidelines are very explicit.	SD	D	A	SA
25.	Where planned work predominates over unplanned emergencies.	SD	D	A	SA
26.	Where no or very little work takes place outside normal working hours.	SD	D	A	SA
27.	In which my leadership skills would enable me to be the key decision-maker.	SD	D	A	SA
28.	Where the most effective treatments are already well established.	SD	D	A	SA
29.	In which the team rather than individual doctors take responsibility.	SD	D	A	SA
30.	That does not emphasise personal qualities at the expense of medical expertise.	SD	D	A	SA
31.	That is largely independent of other specialties.	SD	D	A	SA
32.	In which patients' views are of fundamental importance.	SD	D	A	SA
33.	Where I would just treat people during their episodes of illness.	SD	D	A	SA
34.	In which career success does not depend heavily on excellent communication skills.	SD	D	A	SA
35.	In which all are expected to work to team decisions.	SD	D	A	SA
36.	In which slow results are compensated by long term success.	SD	D	A	SA
37.	In which skill in crisis management is an over-riding requirement.	SD	D	A	SA
38.	That is one of the major front-line specialties.	SD	D	A	SA
39.	That is likely to produce quick results.	SD	D	A	SA
40.	In which life and death decisions are rarely faced.	SD	D	A	SA
41.	Where most of the patients are adults.	SD	D	A	SA
42.	That will provide opportunities for me to use my management skills.	SD	D	A	SA

I want to work in a specialty…..

		Strongly Disagree	Disagree	Agree	Strongly Agree
43.	Where good manual manipulation skills are essential.	SD	D	A	SA
44.	That does not require doctors to be at their best performance all the time.	SD	D	A	SA
45.	In which most of the procedures have positive outcomes.	SD	D	A	SA
46.	That does not obstruct patients' rights to run their lives as they wish.	SD	D	A	SA
47.	In which the consequences of inaccuracy are almost always very serious.	SD	D	A	SA
48.	In which invasive skills are not needed.	SD	D	A	SA
49.	Where I would need to learn new techniques quickly.	SD	D	A	SA
50.	Which encourages co-operation with patients' relatives and communities.	SD	D	A	SA
51.	In which skills in using machinery and equipment are valued.	SD	D	A	SA
52.	In which funds are readily available for research.	SD	D	A	SA
53.	That has elements of a service or support specialty.	SD	D	A	SA
54.	Where the work is always exciting.	SD	D	A	SA
55.	Where most of the patients are elderly.	SD	D	A	SA
56.	Where consistency in performance is essential.	SD	D	A	SA
57.	In which I would never be asked to do tasks for which I was not fully trained.	SD	D	A	SA
58.	That has a strong research tradition.	SD	D	A	SA
59.	In which consultants work without frequent reference to other specialties.	SD	D	A	SA
60.	That addresses the overall needs of society rather than of individual patients.	SD	D	A	SA
61.	In which demonstrating confidence is important.	SD	D	A	SA
62.	That would benefit from my skills in running a routine service.	SD	D	A	SA
63.	In which exceptional patience and sympathy are required in dealing with patients.	SD	D	A	SA
64.	Where it is possible to make progress without having to carry out research.	SD	D	A	SA
65.	In which I may not be able to do much for some patients.	SD	D	A	SA

I want to work in a specialty…..

		Strongly Disagree	Disagree	Agree	Strongly Agree
66.	In which the occasional lapse of time-keeping will not have dire consequences.	SD	D	A	SA
67.	In which treatment involves lengthy discussion with patients and relatives.	SD	D	A	SA
68.	In which the working patterns are predictable.	SD	D	A	SA
69.	Where a sense of humour is not essential to success.	SD	D	A	SA
70.	Where all of the patients are children.	SD	D	A	SA
71.	Where all the training takes place in one geographical location.	SD	D	A	SA
72.	Where I need to listen carefully to patients and relatives.	SD	D	A	SA
73.	That requires a complete commitment to teamwork.	SD	D	A	SA
74.	Where colleagues are not unduly penalised for the occasional oversight.	SD	D	A	SA
75.	In which consultants work in collaboration with doctors in other specialties.	SD	D	A	SA
76.	That is a minor specialty.	SD	D	A	SA
77.	Where it is rarely possible to go home at the same time every day.	SD	D	A	SA
78.	In which diagnosis is difficult and challenging.	SD	D	A	SA
79.	That demands the ability to make life and death decisions.	SD	D	A	SA
80.	That is not a service or support specialty.	SD	D	A	SA
81.	Where independent decision-making is encouraged.	SD	D	A	SA
82.	In which doctors who occasionally miss points of detail are not disadvantaged.	SD	D	A	SA
83.	In which the loner still has an opportunity to get ahead.	SD	D	A	SA
84.	In which a current lack of effective treatment offers a challenge.	SD	D	A	SA
85.	In which personal deficiencies are tolerated.	SD	D	A	SA
86.	Where academic excellence is truly respected.	SD	D	A	SA
87.	Where important decisions are normally the responsibility of other specialties.	SD	D	A	SA
88.	Where no or very little work need be carried out in the laboratory.	SD	D	A	SA

I want to work in a specialty…..

		Strongly Disagree	Disagree	Agree	Strongly Agree
89.	In which mental and verbal skills are more important than manual dexterity.	SD	D	A	SA
90.	In which patients are fully appreciative of what is being done for them.	SD	D	A	SA
91.	In which I will not have to cope with sick children.	SD	D	A	SA
92.	In which diagnosis is dependent on up-to-date scientific and medical knowledge.	SD	D	A	SA
93.	Where observing & waiting is a major part of treatment and disease management.	SD	D	A	SA
94.	That involves work outside the hospital setting.	SD	D	A	SA
95.	Where the nature of the work makes strict scheduling inappropriate.	SD	D	A	SA
96.	In which being highly assertive is an asset.	SD	D	A	SA
97.	That requires a special skill at being able to attend to every last detail.	SD	D	A	SA
98.	Where an ability to use complex equipment is of paramount importance.	SD	D	A	SA
99.	In which a large part of the time is spent dealing with patients in clinics.	SD	D	A	SA
100.	Where considerable time is spent communicating with patients' relatives.	SD	D	A	SA
101.	That does not depend excessively on teamwork.	SD	D	A	SA
102.	In which the immediate success of treatment is the rule rather than the exception.	SD	D	A	SA
103.	That by its nature has to work closely with other specialties.	SD	D	A	SA
104.	Where the emphasis is on doing rather than analysing.	SD	D	A	SA
105.	In which it is frequently necessary to tolerate a degree of uncertainty.	SD	D	A	SA
106.	Where many of the patients are adolescents or children.	SD	D	A	SA
107.	Where very little of the work is based in hospital wards.	SD	D	A	SA
108.	That is currently one of the smaller specialties.	SD	D	A	SA
109.	Where workloads are heavy during training but lighter at consultant level.	SD	D	A	SA
110.	In which success depends on vision rather than an attention to detail.	SD	D	A	SA
111.	Where many colleagues are pursuing an academic career.	SD	D	A	SA

I want to work in a specialty…..

		Strongly Disagree	Disagree	Agree	Strongly Agree
112.	In which I may need to accept that I have no treatment to offer some patients.	SD	D	A	SA
113.	That is at the cutting-edge and moving into new areas and new treatments.	SD	D	A	SA
114.	In which career advancement does not depend on research skills.	SD	D	A	SA
115.	In which very careful and detailed work with the fingers and hands is required.	SD	D	A	SA
116.	In which there may be a long wait for the better consultant jobs.	SD	D	A	SA
117.	In which training does not require extensive travel.	SD	D	A	SA
118.	Where the job involves out-of-hours and emergency work.	SD	D	A	SA
119.	In which making decisions quickly is not encouraged.	SD	D	A	SA
120.	In which diagnosis and treatment have many stages and facets.	SD	D	A	SA
121.	That offers opportunities to the non-academic.	SD	D	A	SA
122.	That does not penalise the excellent doctor with poor communication skills.	SD	D	A	SA
123.	That utilises skill with people rather than with computers or complex equipment.	SD	D	A	SA
124.	That is suited to a person who prefers an academic career.	SD	D	A	SA
125.	In which meticulous accuracy is an over-riding requirement.	SD	D	A	SA
126.	Where I could spend much of my time carrying out operations.	SD	D	A	SA
127.	Where frequent emergencies mean that the work is never routine.	SD	D	A	SA
128.	Where none of the patients are elderly.	SD	D	A	SA
129.	In which dedication over and above the call of duty is the norm.	SD	D	A	SA
130.	That requires very sharp intellectual skills.	SD	D	A	SA

NOW PLEASE CHECK THAT YOU HAVE ANSWERED ALL THE QUESTIONS

Thank you for taking part. Please return questionnaire in the envelope provided.

APPENDIX B

Interview Preparation
A Career Map

Please record what has influenced your career decision making at various time of your life, complete the table on page 2 and bring both papers with you to the interview:

Name: Date:

Early years

Schooling

University

Postgraduate clinical experience

Social/Personal issues

Factors Influencing Career Choice

(Taken from 'IDENTIFICATION OF CAREER INTENTIONS AS A FUNCTION OF FOUNDATION PROGRAMME EXPERIENCE'

Janet Grant, Mairead Maxted. Heather Owen, Katrina Wooding)

Name:

Date:

Please put an x in ONE OPTION for each factor

Factors	Very Important	Important	Not Important
Domestic Circumstances			
Financial Circumstances whilst training			
Promotion/career prospects in chosen specialty			
Anticipated ease of obtaining a career post			
Self-appraisal of own skills/aptitudes			
Advice from others			
Careers advice			
Inclination before medical school			
Student experience of chosen subject			
Experience of jobs in training			
Enthusiasm/commitment: what I really want to do			
Influence of family members			
Influence of consultant in previous job			
Sci45 – a career advice tool			

Thank you for completing this table. Please remember to bring BOTH pages with you to the interview.

Neil Munro

Sussex School of Education,
The Sussex Institute,
University of Sussex,
Falmer,
Brighton,
BN1 9QQ

PARTICIPATION INFORMATION SHEET
(INTERVIEW)

13. Study title

POSTGRADUATE ATTACHMENT TO GENERAL PRACTICE; INFLUENCE ON FUTURE CAREER INTENTIONS

14. Invitation paragraph

Thank you for reading this sheet. You are being invited to take part in a research study. Before you decide it is important that you understand why the research is being conducted and what participation will mean. Please take time to read the following information and consider whether or not you wish to take part. We will be happy to provide any other information you may require.

15. What is the purpose of the study?

The purpose of this study is to determine what influence a period of placement in general practice during the second foundation year has on career intention among doctors undergoing postgraduate medical training. This will be achieved through a combination of face to face and telephone interviews and questionnaire responses. This work has been commissioned by, and will be carried out within, Kent, Surrey and Sussex (KSS) Postgraduate Deanery.

16. Why have I been chosen?

You have been chosen because you have enrolled in a foundation programme within the KSS Deanery. Your contribution, by completion of a questionnaire and possible participation in a subsequent interview, will help evaluate career intentions among doctors under going general practice attachment during the second foundation year.

17. Do I have to take part?

This is entirely voluntary. If you decide to take part you will be given this information sheet to keep and be asked to sign a consent form which you give to the interviewer or return by post. You can withdraw at any time without giving a reason. A decision to withdraw, or a decision not to take part, will not affect your legal rights or training in any way.

18. What will happen to me if I take part?

You will be asked to take part in an interview, either face to face or by telephone, designed to elucidate factors that influence your decision making as far as career choice is concerned. Interviews will last approximately 1 hour. This time will ordinarily be allowed as part of time in training. Information will be entirely confidential and will be anonymised. These methods will supplement information derived from a questionnaire developed during this phase of the study

University of Sussex

Sussex School of Education,
The Sussex Institute,
University of Sussex,
Falmer,
Brighton,
BN1 9QQ

19. What are the possible disadvantages or risks of taking part?

There is an opportunity to reflect on past influences in respect of career choice with the possibility of producing feelings of regret. In the event of this happening you may wish to seek advice from your local GP tutor or clinical tutor, your educational supervisor, the BMA Doctors for Doctors Unit or the BMA Counselling service. The Doctors for Doctors Unit (email: info.d4d@bma.org.uk) offers confidential support to practitioners in difficulty and has developed a resource pack as a self-help tool to aid doctors (http://www.bma.org.uk/ap.nsf/Content/Hubhealthandwellbeing). The BMA Counselling Service (08459 200169) is a 24-hours a day, 365 days a year service to help doctors and their families with work-related, emotional and personal problems.

20. What are the possible benefits of taking part? How will information be used?

There are no direct immediate benefits. However, participants will have the opportunity to reflect on their career path through completion of the questionnaire and during an interview. In addition findings will inform educational planners of the impact that GP attachment during the second foundation year might have on doctors career choice.

21. What happens when the research study stops?

Findings will be disseminated through web sites at KSS Deanery and presented in professional and academic journals. Participants will not be identified in any report or publication. It will take at least 18 months before any results are available

22. Will my taking part in this study be kept confidential?

All information which is collected about you during the course of the study will be kept strictly confidential. Any information from interviews or questionnaires will be anonymised. Data will be stored in secure, locked cabinets and in computer files that can only be accessed by named researchers. Processing of data will comply with the Data Protection Act (1998). The data will not be sent outside the European Economic Area, or to any other location within the UK. The study is set to compete by August 2008. Data will be destroyed within 2 years of the end of the study unless the findings suggest an extension of the study period would be important – in which event your permission to continue in the study would be specifically sought in writing.

23. Who is organizing and funding the research?

This work has been commissioned by, and will be carried out within, Kent, Surrey and Sussex (KSS) Postgraduate Deanery. Dr Neil Munro is the Chief Investigator conducting this study as part of a doctorate and is supervised by Professor Michael Eraut, Chair of Research and Development Committee of the School of Education, University of Sussex. Funding for the study is through the KSS Postgraduate Deanery.

24. What if I have any concerns?

If you have any concerns or any other questions about this study, or in the way it has been carried out, you should contact the investigator Dr Neil Munro on 01372 467657 (surgery), 07776181505 (mobile), email; neil.m.munro@btinternet.com or you may contact your PCT complaints department

Sussex School of Education,
The Sussex Institute,
University of Sussex,
Falmer,
Brighton,
BN1 9QQ

CONSENT FORM: INTERVIEWS

Title of Project: **POSTGRADUATE ATTACHMENT TO GENERAL PRACTICE; INFLUENCE ON FUTURE CAREER INTENTIONS**

Name of Researcher: Dr NEIL MUNRO Please initial box

4. I confirm that I have read and understand the information sheet (PIS Version 01a1) dated 12/03/05 for the above study and have had the opportunity to ask questions. ☐

5. I understand that my participation is entirely voluntary and that I am free to withdraw at any time, without giving any reason and without my legal rights being affected. I understand that my name or any other identifying information will not appear on any reports or publications. ☐

6. I understand that interview discussions will be recorded and that direct, but anonymised, quotes, without any contextual information that might identify me, may be used in subsequent reports or publications. ☐

7. I agree to take part in the above study. ☐

_____	_____	
Name of Participant	Date	Signature
_____	_____	
Name of Person taking consent (if different from researcher)	Date	Signature
_____	_____	
Researcher	Date	Signature

POST INTERVIEW

Having participated in an interview I consent to information obtained being used in the study

_____	_____	
Name of Participant	Date	Signature

Sussex School of Education,
The Sussex Institute,
University of Sussex,
Falmer,
Brighton,
BN1 9QQ

CONSENT FORM: INTERVIEWS

Title of Project: **POSTGRADUATE ATTACHMENT TO GENERAL PRACTICE; INFLUENCE ON FUTURE CAREER INTENTIONS**

Name of Researcher: Dr NEIL MUNRO Please initial box

8. I confirm that I have read and understand the information sheet (PIS Version 01a1) dated 12/03/05 for the above study and have had the opportunity to ask questions. ☐

9. I understand that my participation is entirely voluntary and that I am free to withdraw at any time, without giving any reason and without my legal rights being affected. I understand that my name or any other identifying information will not appear on any reports or publications. ☐

10. I understand that interview discussions will be recorded and that direct, but anonymised, quotes, without any contextual information that might identify me, may be used in subsequent reports or publications. ☐

11. I agree to take part in the above study. ☐

_____	_____	
Name of Participant	Date	Signature
_____	_____	
Name of Person taking consent (if different from researcher)	Date	Signature
_____	_____	
Researcher	Date	Signature

POST INTERVIEW

Having participated in an interview I consent to information obtained being used in the study

_____	_____	
Name of Participant	Date	Signature

Interview Questions July 2005

Tell me where you are in your professional life?

Have you chosen a career path?

Did your choice change throughout school, university and early clinical experience ?

What is your concept of the ideal career?

What factors determined your career choice?

- Domestic circumstances
- Financial circumstances whilst training
- Promotion/career prospects in chosen speciality
- Anticipated ease of obtaining a career post
- Self appraisal of own skills/aptitudes
- Advice from others
- Careers advice
- Inclination before medical school
- Student experience of chosen subject
- Experience of jobs in training
- Enthusiasm/ commitment; what I really wanted to do
- Influence of family members
- Influence of consultant in previous job
- Sci 45 – a career advice tool

What did you expect of your general practice attachment during F2?

What was your experience of your F2 GP attachment?

- Your interest in general practice
- Challenge
- Fitting with lifestyle
- Organisation
- Interest
- Teaching
- Workload
- Patient contact
- Teamworking
- Role models

Is there anything you would change about the attachment?

Did your career choice change as a result of your F2 attachment?

Any other comments?

CONSENT FOR USE OF CASE STUDY IN THESIS

To: Dr N Munro,
Little Orchard,
Reigate Road,
Leatherhead,
Surrey KT22 8QY.
01327 372250 (H)
07776181505 (M)

POSTGRADUATE ATTACHMENT TO GENERAL PRACTICE; INFLUENCE ON DOCTORS' FUTURE CAREER INTENTION

I, ( ), consent to use of the case study named ( ) in the DPhil thesis by Dr Neil Munro for submission to Sussex University. I understand that the thesis, subject to examination, will be available electronically for universal access

Signed: Date:

Address:

APPENDIX C

Rev 14/04/05

Postgraduate attachment to general practice; Influence on future career intentions

Dr Neil Macarthur Munro

Proposal for Doctor of Philosophy
University of Sussex

May 2005

Contents

Postgraduate attachment to general practice;
Influence on future career intentions

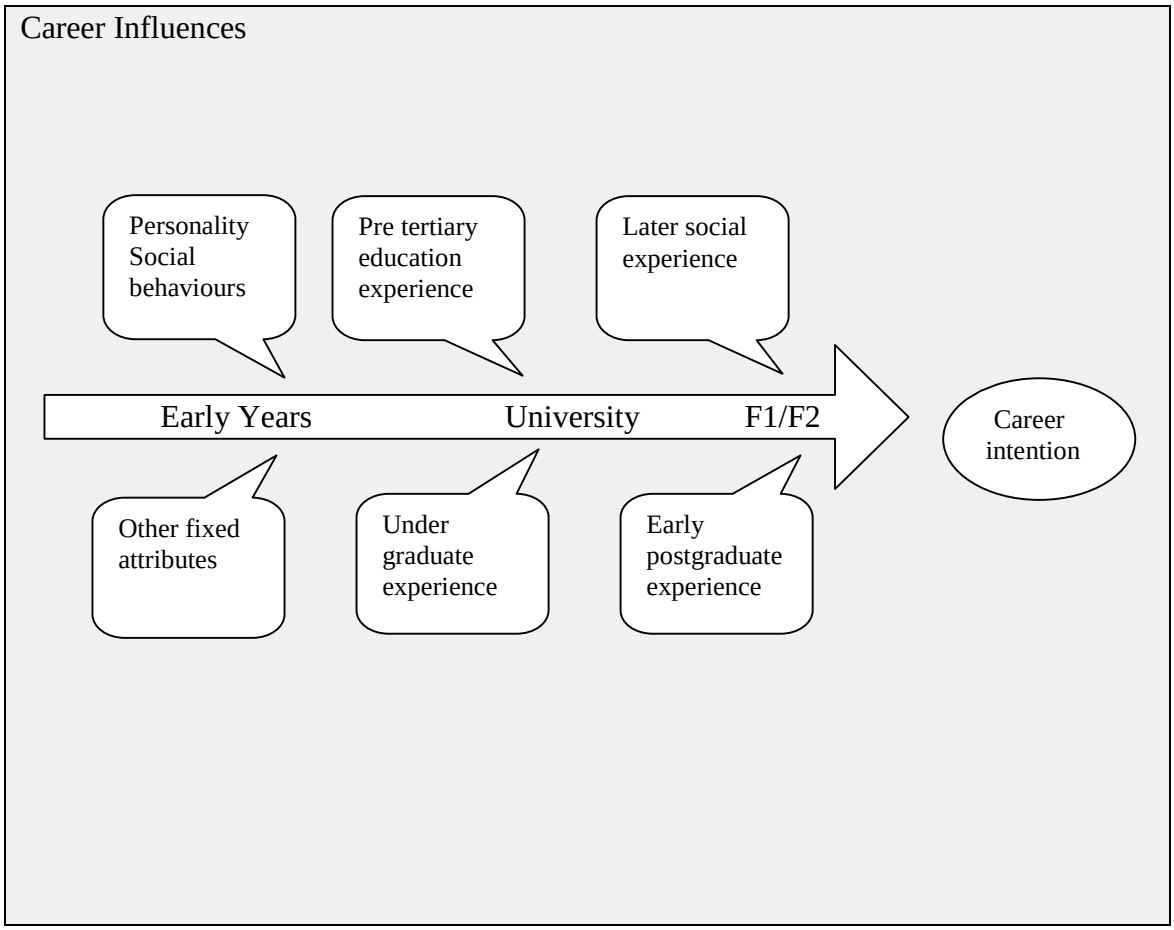
Dr Neil Macarthur Munro

Proposal for Doctor of Philosophy
University of Sussex

Background

Career intentions in medicine

Attracting suitable medical graduates to general practice (as well as certain other medical specialties) is currently a significant issue for health services internationally as well as for the United Kingdom National Health Service.



Many factors potentially contribute to career intention among doctors. Individual preference depends on a myriad of influences. Students choosing their role models for a life in medicine may be more motivated by a need to be personally valued than to emulate clinicians whose skills they come to respect. In one study 24% of students, in a culturally mixed South African medical school, selected role models from their own families whereas only 8% chose teaching staff (Cotton & Morrison, 2004). Among female students in Utah, however, choice of surgery as a career was strongly associated with higher proportion of women on surgical faculties (Neumayer et al., 2002). Gelfand et al. (2002) examined flagging interest in surgical disciplines and found that 'erosion of income differential between demanding and less taxing specialties', concern with 'controllable lifestyle' elements including family/leisure time, high stress levels and work commitment contributed to the decline in interest noted in recently qualified US graduates. By contrast Goldacre et al. (1999) observed a substantial decline in stated intentions to enter general practice when comparing 1993 and 1996 cohorts of UK graduates one year post qualification. A rise in interest in hospital specialist training was observed following Calman changes. In addition around a quarter of respondents expressed doubt that they would pursue a career in the UK.

When comparing demographic, educational and psychological factors influencing the choice of primary care and academic medical careers of graduates from the University of Kentucky College of Medicine Rubeck et al. (1995) found that academic physicians were more influenced by long term participation in research, intellectual stimulation, content of speciality and the influence of a role model or mentor than their primary care contemporaries. Those choosing family medicine were influenced predominantly by shorter training, the need for direct patient contact and a fear of litigation. Characteristics associated with doctors choosing primary care included having a broad undergraduate background, non-physician parents, less interest in prestige, high technology and surgery and an interest in diverse patients and health problems (Bland et al., 1995; Henderson et al., 1996).

Van Gijn (1998) suggests that a caring and humanistic attitude in physicians is probably less dependent on specific training than on innate personality traits and the examples of role models. Markham & Diamond (1997) investigated whether fourth year medical students selecting family medicine as a career had greater psychosocial orientation, as

measured using the Physician Belief Scale, compared with their contemporaries choosing specialist training. Although female students generally had greater psychosocial orientation than their male peers there was no significant difference between those choosing family medicine and other training pathways. Because family physicians generally have greater psychosocial orientation compared to those in other specialties it was postulated that this would be gained after qualification and during higher professional training. Family physician mentors in Canada have been found to be an important factor in influencing senior students to pursue careers in family medicine (Jordan et al., 2003).

Efforts by medical schools to predict future career intentions of admitted applicants have been largely unsuccessful (Owen et al., 2002). A study of all students graduating from the School of Medicine, University of Virginia, between 1994 and 1997 found that judgments based on applicants' characteristics did not significantly relate to students' career plans at graduation. Researchers investigating predictors of graduates entering generalist practice found that admission criteria and faculty role models had some influence on career intention whilst personal social values were the individual characteristics that most strongly influenced graduates' choice (Martini et al., 1994). Inter-disciplinary perceptual differences also play a part in affecting career intentions. Premedical school academic performance of students choosing family practice has been found to be similar to those choosing specialist paths but students selecting primary care ranked themselves lower than other students in medical school academic performance (Burkett & Gelula, 1982).

The impact of negative comments on medical students' career choices ("bad mouthing") has been studied at the School of Medicine, University of Washington (Hunt et al., 1996). One-sixth of all respondents to a questionnaire about "badmouthing" reported changing their career choice as a result of hearing such adverse comment. However primary care and non-primary care fields were equally affected by these career changes and it was felt that derogatory comments by senior physicians alone did not explain the low proportion of graduates choosing primary care.

Recruitment and retention problems in general practice

General practice in the UK has been experiencing difficulty with medical staff recruitment and retention for several years. Lambert & Goldacre (1998), in a postal survey of 3724 participants with a 77.7% response rate, analyzed career intentions seven years post graduation of all UK trained doctors who qualified in 1988. The proportion of doctors working in general practice was lower than in previous cohorts and that concerns about recruitment difficulties is general practice were 'justified'. Fewer newly qualified doctors were choosing to enter general practice as fulltime principals (Lambert et al., 2002).

In a qualitative study Evans et al. (2002) found several factors contributing to poor recruitment and retention of general practitioners including

- portrayal by some hospital-based teachers of general practice as a second class career
- a perception of low morale among current general practitioners
- increased workload in primary care
- movement of rationing of care from Government to general practice (loss of patient advocacy role)
- growing public expectation

Young & Leese (1999) reviewed the published literature relating to recruitment and retention problems in general practice and identified several key factors

- the social composition of the workforce is changing
- a large proportion of the workforce is significantly under-utilised within traditional career structures
- considerable difficulty in the ability of some areas to match labour supply and demand

In addition to problems of recruitment post qualification Chambers et al. (2004) investigated retirement intentions in all Scottish principals over the age of 55. Of the 333 respondents to a validated questionnaire (95% response rate) 71% reported

intentions to retire at or before 60.Among those intending to retire before 60 81% cited excessive workload as the predominant reason. Similar findings have been reported in other surveys of retirement intentions among senior general practitioners (Luce et al., 2001). Sibbald et al. (2003) analyzed intentions to quit direct patient care among general practitioners in 1998 and 2001 and reported an increase from 14% to 21% over the five year period. The most important factors associated with intention to quit were increased age, job dissatisfaction, having no children under the age of 18 and ethnic minority status. A number of strategies to reverse this trend including more flexible working and additional financial incentives have been proposed (Thornett et al., 2003).

Set against the background of general practitioners retiring early those responsible for meeting future demands for increased numbers of general practitioners face a formidable task. There is a pressing need for greater understanding of career decision making processes in doctors during the early part of their professional lives including the impact of postgraduate exposure to a period of attachment to general practice.

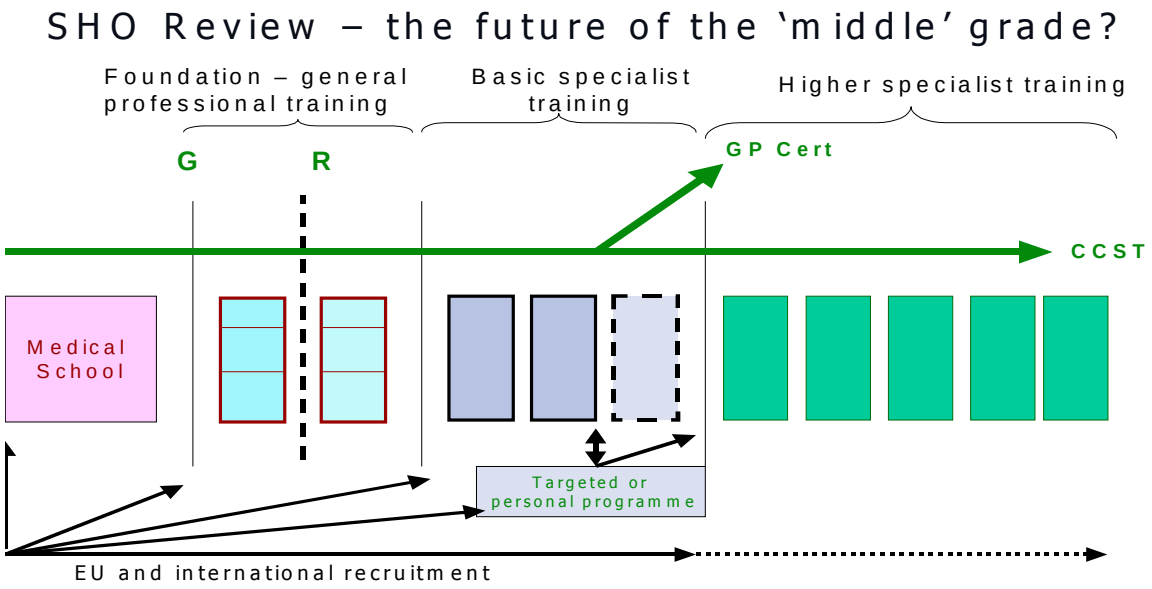
Developments in postgraduate medical education

Over the next three years there will be significant changes in postgraduate medical education within the United Kingdom (Department of Health, 2004a). The traditional apprenticeship model of training is still regarded as important but is to be set within 'efficiently managed, quality assured training programmes compatible with the Working Time Directive' (COPMED, 2002).

Following publication of the initial policy statement *Modernising Medical Careers* (Department of Health, 2003) a UK strategy group was formed to consult on the principles laid down in the policy document itself and make proposals for implementation of key recommendations. These have been summarized in '*The next steps – the future of foundation, specialist and general practice training programmes*' (Department of Health, 2004) and build on the main reform proposals emerging from earlier work focusing on the SHO hospital grade – '*Unfinished business. Proposals for reform of the senior house officer grade'* (Department of Health, 2002).

Reviewing the Senior House Officer Grade

The diagram below illustrates projected pathways for doctors in their postgraduate training period. This study will focus on those entering the second foundation year and will follow doctors through their basic training.



After graduating doctors will undertake an integrated, planned two-year foundation Programme of general training

- the first year equating to the current pre-registration house officer year
- the second (post-registration) year incorporating a generic first year of current SHO training
- the foundation Programme should lead on to specialist and general practice training

A competency framework, based on outcomes, will guide trainees through the foundation programme and provide evidence of progressive acquisition of skills. The content and style of training will be determined by the Key Principles and Standards for Postgraduate Medical Education Training Programmes (PMETB, 2003).

The concept of a foundation programme arose following an earlier Department of Health report *A Health Service of all the talents: Developing the NHS workforce* which showed that 'career decisions by doctors in training were often made too hastily'

(Department of Heath, 2000). Reform of the SHO grade in particular has been seen as 'long overdue' (Gallen & Peile, 2004) with interest in developing this training grade stretching back over a decade (Dillner, 1993; Junior Doctors Committee, 1998).The second foundation year has been designed to offer doctors the chance to sample a wider range of professional opportunities. This study will focus on the impact on career choice of a general practice attachment during this training phase.

The foundation programme and beyond

The table provides details of projected programmes as they will unfold from 2005. Tailoring of these programmes will be determined by individual educational needs and accrued competences.

<table>
<tr><th colspan="5">F1 YEAR</th><th colspan="3">F2 YEAR</th><th>NEXT 3 YEARS</th><th>FURTHER TRAINING</th></tr>
<tr><td colspan="3">Medicine</td><td colspan="2">Surgery</td><td>Speciality</td><td>Primary Care</td><td>Speciality</td><td>Run Through Grade</td><td>Further specialist training</td></tr>
<tr><td>Speciality</td><td colspan="2">Medicine</td><td>Surgery</td><td></td><td colspan="3"></td><td>GP Training</td><td>GPs With Special Interests</td></tr>
</table>

A pilot study looking at a first year training programme developed during a foundation year in general practice suggested that all three doctors decided on a career in general practice as a result of an F2 placement - only one having expressed this aspiration at the outset (Downey & Duncan, 2004). This programme contained a variety of teaching opportunities including;

- A two week induction period including computer training, sitting in on surgeries, home visits and community hospitals
- Twice weekly tutorials
- Attachments with all members of primary health care team
- Individual SHO surgeries with 20 minute appointments

- A mini-audit
- Two chronic cases written up as a reflective learning piece examining patients use of health resources
- Video recording of consultation skills
- Attendance at local vocational training scheme (VTS)
- Protected time for completion of projects and reading
- Attendance at local consultant clinics with examination of quality and content of GP and consultant/discharge letters
- Collection of evidence for portfolio (using RITA) e.g. reading list, list of tutorials, cases, learning issues arising from work in the practice or on an attachment

Aim of the study

The purpose of the proposed study is to determine what influence a period of placement in general practice during the second foundation year has on career intention among doctors undergoing postgraduate medical training. The short duration of the study makes it impractical to examine careers on any basis other than intention.

Method

The following elements will contribute to the methods employee

- Literature review
- Individual face to face and telephone interviews
- Focus groups
- Questionnaire development
- Trailing of questionnaires
- Cohort study
- Analysis of results

Literature review

A literature review will initially be undertaken. The aim of the review will be to define the factors that influence doctors in their choice of medical career. Search strategies will be based on key words found in Embase, Medline, PubMed, Cochrane and Cinnahl. English and non-English sources will be examined. The grey literature will also be investigated.

Recruitment of study subjects

The Kent, Surrey and Sussex Deanery is planning to enrol doctors in foundation year 1 and 2 programmes as shown below.

Trainees	Aug/Sept 2005	Aug/Sept 2006	Aug/Sept 2007
F1 (PHRO)	335	393	455
F2 (SHO-1)	60+	60-100	100+

The intention is to recruit from the population of KSS deanery involved in the foundation programme from 2004 to 2005. During the early phase questionnaire development will focus on the early experience of doctors engaged in the new learning pathways. Direct interview with participants involved in the three pilot programmes will supplement focus group activity looking at components that will make up an attachment during the second foundation year. Interviews will also be conducted with those currently in their foundation year 1 (F1) placements in order to clarify their career aspirations prior to entering foundation year 2 (F2) training. The intention then is to prospectively follow two cohorts of practitioners as shown below.

	2005	2006	2007
Cohort 2 (qual 2004)	Foundation Year 2	Basic Training Year 1	Basic Training Year 2
Cohort 1 (qual 2005)	Foundation Year 1	Foundation Year 2	Basic Training Year 1

Following two year cohorts will contribute to the reliability of the study. The inclusion of a period of placement in general practice training during F2 is likely to be adopted in a variable pattern nationally – some regions are considerably better prepared than others.

The KSS deanery has well developed strategies, philosophical commitment to Modernising Medical Careers and adequate resource in terms of funds and personnel to meet the schedule shown above. Whilst this does not take account of regional variations in medical workforce that might have an impact on career intention it represents a pragmatic approach to an evolving educational scenario.

Preliminary phase

Between April 2005 and August 2005 interviews and focus group discussions involving trainees in F1 and F2 years will be undertaken. The intention is to develop a Career Assessment Instrument in the form of a questionnaire. This will then be applied to doctors participating in F2 general practice attachments after August 2005.

Interviews

Three interviews with doctors who have completed pilot attachments in general practice during the first Senior House Officer year (2004-2005) will be arranged. An account of the interview will be drawn up by the interviewer and sent to the respondent for their comment. A check list may be employed in the second part of the interview in order to ensure that interviewees will have had the opportunity to discuss topics of their own choosing. Interviewee anonymity will be preserved through a range of measures including name, age or gender alteration. Consent to hold data as well as publish will be specifically sought in accordance with the Thames Valley Medical Research Ethical Committee (MREC) recommendations.

Focus groups

Focus group work will help in the development of a questionnaire designed to test the null hypothesis that exposure to general practice training during the second foundation year makes no difference to doctors career choices in respect of general practice itself. There will two focus groups. One will be made up of foundation year 1 trainees (F1) about to embark on a programme containing a four month GP attachment. The other will be based on GP trainers about to take foundation year 2 doctors (F2) on GP attachments. Information from the interviews will feed into the focus group activity

which will concentrate on expectations of trainers and Senior House Officers/ foundation year 1 doctors from the attachment itself. Implications of these findings could be discussed with key members of the KSS Deanery.

Interviews and focus groups will look at areas including;

- Range of influences during the attachment itself
- Doctors own views and attitudes towards GP placement
- Pre-existing career beliefs
- Trajectory modelling including;
    - Processes that occurred before placement
    - Processes that occurred during placement
    - Processes that occurred after placement
- Participants account of their actual activity
- What they observed
- Particularly good learning opportunities

Questionnaire development

A Career Assessment Instrument (CAI) will be developed based on existing tools (Gale & Grant, 2002), analysis of currently held data, review of the literature and evidence derived from focus groups. It will be designed to reflect changes in career intention from the aspects of both prospective generalist and specialist. The questionnaire will be semi-quantitative as well as qualitative in design. It will be piloted, revised and administered prior to and on completion of the 4 month attachment. Selected interviews will then take place in order explore further information emerging from completed questionnaires. Consideration will be given to administration of a shorter questionnaire one year post attachment.

Questions to be answered may include the following

- What factors determine doctors' primary career choice?
- Do these change throughout school and university?

- Does the reality of employment to date match individual expectations?
- How important are role models – both professional and social?
- What influences relationships between doctors?
- Are there aspects of primary care/secondary systems that impinge on such relationships?
- What external groups may influence outcomes?
    - Funders
    - Professional groups
    - Traditional mind sets
    - Medical schools

The CAI will be administered in the form of a questionnaire. Elements to be considered in respect of questionnaire development and use are shown below;

- Focus groups – to explore the territory and may key areas for further study (Howitt & Cramer, 2000).

- Questionnaires fail because participants
    - Do not understand them
    - Can not complete them
    - Are bored by them
    - Are offended by them
    - Dislike their appearance

- Questions to be asked
    - How long did it take to complete
    - Do any questions appear unclear
    - Is there surprise or confusion at any of the questions

- Organisation
    - Sampling frame
    - Response rate

  - Completion rate
  - Reminder letter
  - Mechanism of delivery and collection (Brogger et al., 2003)

- Maximising response rates
  - Clear design and simple layout
  - Incentives to return
  - Piloted and tested (Halpern et al., 2002)
  - Advance notification with personalised invitation
  - Aims and means clearly explained
  - Researcher available to answer questions
  - Stamped addressed envelope
  - Questions hold participants attention
  - Participants are stakeholders in work
  - Concise and clear
  - Appealing
  - Can be delivered electronically

The CAI will be trialled within the Deanery prior to being used in the main study.

Prospective cohort study

The intention is to follow two consecutive cohorts of doctors as previously described. Models of career intention based on data from the first cohort will be validated by examining their predictive performance in the second cohort. Data to be recorded during this period includes information relating to important endpoints (full certification in minimum time, time taken out of training, remedial/repeat training, changes in career pathways, adverse reports/complaints/ disciplinary events). Annual administration of the Career Assessment Instrument will provide quantifiable data relating to career choice whatever path is chosen.

Instrument

Career Assessment Instrument

This has been previously described and will be applied on an annual basis. Questionnaire items will be developed to examine career intentions. Development of the questionnaire will be consistent with published recommendations on selection of variables and design of such instruments (Boyton & Greenhalgh, 2004).

Data analysis

Both qualitative and quantitative data will be collated from serial applications of measurement instruments. Qualitative findings will be reported from both individual interviews and focus groups. Analysis of questionnaire responses will be made using appropriate statistical methods.

Results will be presented in written and tabular formats

Ethical approval and quality assurance

The research will be conducted in accordance with contemporary good practice with due regard to probity, privacy guidance and regulation.

Ethical approval has been obtained from the Thames Valley MREC following a Central Office for Research Ethics Committees (COREC, 2004) on-line submission. A condition of approval is that a questionnaire developed in the early phase of the study be subject to scrutiny by Thames Valley MREC prior to use within the study. Approval is subject to Chairman's action.

Care will be taken to ensure that participants are

- Appropriately informed about the aims of the study
- Aware of how their responses will be used and protected

- Assured of the confidentiality of their contributions
- Willing to take part in the study

Supervision for the study until September 2004 was provided by Professor Konrad Jamrozik DPhil, FAFPHM, MFPH, Chair of Primary Care Epidemiology, Division of Primary Care & Population Health Sciences, Imperial College of Medicine, University of London. From October 2004 responsibility for supervision passed to Professor Michael Eraut, Chair of Research and Development Committee of the School of Education, University of Sussex.

The study will be

- consistent with data protection law
- conducted according to research governance frameworks (Department of Health 2001)

In addition research and development funding will require appropriate approval from central regulating bodies.

Timeframe

September 2004 – March 2005	DPhil approval (Achieved) Finalise research proposal (Achieved) Seek ethical approval (Achieved) Acquire funding commitment (Achieved)
April 2005 – August 2005	Focus group and questionnaire development Literature Review Identify pilot study sample Pilot study
August 2005 – August 2006	Interval and outcome measurements
August 2006 – August 2007	Interval and outcome measurements
August 2007 – August 2008	Publish results + recommendations

Costs

Activity	**Costs (£)**
2004-5	
Library + search	600-00
Travel + subs	2000-00
Focus group costs	1500-00
Stationary + secretarial support	1250-00
Questionnaire 1st cohort	750-00
2005-6	
Questionnaire 2nd cohort + follow up 1st cohort	500-00
2006-7	
Questionnaire follow up 2nd cohort + completion 1st	500-00
2007-8	
Completion questionnaire 2nd cohort	500-00
2008-9	
Photocopying + printing of dissertation	400-00
Total Study Costs	**£8000-00**

Other costs

University tuition fees for DPhil at Sussex University	
2004/5	1003-00 (receipt attached)
Annual Fees thereafter until 2010 @ £1505 pa	7525-00
Total Tuition Fees	**£8528-00**

Principal researcher release from practice (1day per week) covered by PSL payments 2004-9

Funding received to date (KSS Deanery)	**£7103-00**

Recommendations

Relevant findings will feed into selection and career matching procedures. They will provide evidence to support or refute continuing inclusion of a period of placement in general practice during foundation training for all doctors. The implications for doctors early in their professional careers and for those responsible for postgraduate training are self evident. The research is based on a pragmatic approach to solving an important question in medical education.

Papers will be submitted for publication in major peer reviewed academic journals.

PLANNING PHASES

August 2004 – August 2005
Developmental Phase

Liaise with Deanery, supervisor and external expert resources
↓
Finalise Research Proposal
↓
Seek DPhil approval
↓
Secure preliminary funding
↓
Complete initial literature review
↓
Seek ethical approval
↓
Interviews and focus groups
↓
Develop questionnaire
↓
Finalise analytical methodology
↓
Pilot questionnaire
↓
Identify first cohort

August 2004 – August 2008
Implementation Phase
Annual Commitments

Apply career assessment instrument
↓
Follow up interviews

August 2007 – August 2008
Summary Phase

Complete background review
↓
Complete data collection and analysis
↓
Publish results and recommendations

References

Bland, C.J., Meurer, L.N. & Maldonado, G. (1995), Determinants of primary care specialty choice: a non- statistical meta-analysis of the literature, *Academic Medicine*, **70**(7): 620-41.

Boynton, P. & Greenhalgh, T. (2004), Selecting, designing and developing your questionnaire, *British Medical Journal*, **328**: 1312-5.

Brogger, J, Bakke, P, Eide, G.E. & Gulsvik, A. (2003), Contribution of follow up of non-responders to prevalence and risk estimates; a Norwegian respiratory health survey, *American Journal of Epidemiology*, **157**: 558- 66.

Burkett, G.L. & Gelula, M.H. (1982), Characteristics of students preferring family practice or primary care careers, *Journal of Family Practice*, **15**: 505-12.

Chambers, M., Colthart, I. & McKinstry, B. (2004), Scottish general practitioners' willingness to take part in a post-retirement retention scheme: a questionnaire survey, *British Medical Journal*, **328**: 329.

COPMED (2002), Liberating learning: the report of the conference of postgraduate deans' ad hoc working party on the educational implications of the European Union working time directive. London: COPMED, 2002. http://www.copmed.org.uk/Publications/LiberatingLearning/index.html

COREC (2004), New Operational Procedures for NHS RECs. Guidance for applicants to Research Ethics Committees Central Office for Research Ethics Committees (accessed 28th August 2004).

Cotton, P. & Morrison, J. (2004), What educators are saying: How medical students chose their role models, *British Medical Journal*, **328**: 1547

Department of Health (2000), A Health Service of all the talents: Developing the NHS work force, London: DoH, 2000.

Department of Health (2001), Research Governance Framework for Health and Social Care, London: DoH, 2001.

Department of Health (2002), Unfinished Business Proposals for the reform of the senior house officer grade, London: DoH, 2002.

Department of Health (2003), Modernizing Medical Careers; the response of the four UK health ministers to the consultations on unfinished business: proposals for reform of the senior house officer grade. London: DoH, 2003.

Department of Health (2004), The next steps-the future shape of foundation, specialist and general practice training programmes. London: DoH 2004. http://www.dh.gov.uk/publications

Dillner, L. (1993), Senior house officers: the lost tribe, *British Medical Journal,* **307**: 1549-51

Downey, P. & Duncan R. (2004), Developing a foundation year general practice senior house officer rotation: experience of the first year pilot training programme, *Education for General Practice* **14**: 638-642.

Evans, J., Lambert, T. & Goldacre M. (2002), GP recruitment and retention: a qualitative analysis of doctors' comments about training for, and working in, general practice, *Occasional Paper Royal College of General Practitioners*, (83): iii-vi,1-33.

Gale, R. & Grant, J. (2002), Sci45: the development of a specialty choice inventory, *Medical Education*, **36**(7): 659-66.

Gallen, D. & Peile, E. (2004), A firm foundation for senior house officers, *British Medical Journal*, **328**: 1390-1.

Gelfand, D.V., Podnos, Y.D., Wilson, S.E., Cooke, J. & Williams R.A. (2002), Choosing general surgery: insights into career choices of current medical students, *Archives of Surgery,* **137**(8): 941-5.

Goldacre, M.J., Davidson, J.M. & Lambert T.W. (1999), Career choices at the end of the pre-registration year of doctors who qualified in the United Kingdom in 1996, *Medical Education,* **33**: 882-9.

Halpern, S.D., Ubel, P.A., Berlin, J.A. & Asch D.A. (2002), Randomized trial of $5 versus $10 monetary incentives, envelope size, and candy to increase physician response rates to mailed questionnaires, *Medical Care,* **40**: 834-9.

Henderson, M.C., Hunt, D.K. & Williams J.W. (1996), Generalist internists influence students to choose primary care careers: power of role modelling, *American Journal of Medicine,* **101**: 648- 53.

Howitt, D. & Cramer D. (2000), First steps in research and statistics. London: Routledge.

Hunt, D.D., Scott, C., Zhong, S. & Goldstein E. (1996), Frequency and effects of negative comments ("badmouthing") on medical students' career choices, *Academic Medicine,* **71**: 665-9.

Jordan, J., Brown, J.B. & Russell G. (2003), Choosing family medicine. What influences medical students? *Canadian Family Physician,* **49**: 1131-7.

Junior Doctors Committee (1998), The future of the SHO grade, .London: British Medical Association.

Lambert, T.W., Evans, J. & Goldacre, M.J. (2002), Recruitment of UK-trained doctors into general practice: findings from national cohort studies, *British Journal of General Practice,* **52**: 364-7

Lambert, T.W. & Goldacre, M.J. (1998), Career destinations seven years on among doctors who qualified in the United Kingdom in 1998: postal questionnaire survey, *British Medical Journal*, **317**: 1429-31.

Luce, A., Firth-Cozens, J., van Zwanenberg, T. & Tinwell C. (2001), Predicting early retirement in general practice: relationship of retirement plans to job factors, stress and quality. Interim report, Newcastle upon Tyne: Centre for Clinical Psychology and Healthcare Research, Northumbria University, 2001.

Markham, F.W. & Diamond J.J. (1997), Psychological beliefs of medical students planning to specialize in family medicine, *Psychology Report*, **80**:987-92.

Martini, C.J., Veloski, J.J., Barzansky, B., Xu, G. & Fields S.K. (1994), Medical school and student characteristics that influence choosing a generalist career, *Journal of the American Medical Association* **272**(9): 661-8.

Neumayer, L., Kaiser, S., Anderson, K., Barney, L., Curet, M., Jacobs, D., Lynch T. & Gazak, C. (2002), Perceptions of women medical students and their influence on career choice, *American Journal of Surgery*, **183**(2): 146-50.

Owen, J.A., Hayden, G.F. & Connors A.F. (2002), Can medical school admission committee members predict which applicants will choose primary care careers? *Academic Medicine*, **77**(4): 344- 9.

PMETB (2003), Key Principles and Standards for Postgraduate Medical Education Training Programmes Postgraduate Medical Education and Training Board, 2003.

Rubeck, R.F., Donnelly, M.B., Jarecky, R.M., Murphy-Spencer, A.E., Harrell, P.L. & Schwar, R.W. (1995), Demographic, educational and psychological factors influencing the choices of primary care and academic medical careers, *Academic Medicine*, **70**: 318-20.

Sibbald, B., Bojke, C. & Gravelle, H. (2003), National survey of job satisfaction and retirement intention among general practitioners in England, *British Medical Journal*, **326**: 22.

Thornett, A., Chambers, R. & Baker, M. (2003), Keeping doctors in general practice, *British Medical Journal*, **327**: s145-146.

Van Gijn, J. (1998), Medical education: 'plus ca change, plus c'est la même chose', *Ned Tijdschr Geneeskd*, **142**(7): 374.

Young, R. & Leese B. (1999), Recruitment and retention of general practitioners in the UK: what are the problems and solutions? *British Journal of General Practice*, **49**: 829-33.

APPENDIX D

28 January 2005

Dr Neil Munro
General Practitioner
Little Orchard
Reigate Road
Leatherhead
Surrey
KT228QY

Dear Dr Munro,

Study title: ***Postgraduate attachment to general practice;Influence on future career intentions***
REC reference: ***05/MRE12/1***
Protocol number: ***Rev 09/12/04***

The Research Ethics Committee reviewed the above application at the meeting held on 18 January 2005. Thank you for attending to discuss the study.

Documents reviewed

The documents reviewed at the meeting were:

Document Type: Application
Dated: 09/12/2004
Date Received: 16/12/2004

Document Type: Investigator CV - Dr Neil Munro
Date Received: 16/12/2004

Document Type: Protocol
Version: Rev 09/12/2004
Date Received: 16/12/2004

Document Type: Covering Letter
Dated: 09/12/2004
Date Received: 16/12/2004

Document Type: Summary/Synopsis - Planning Phases for August 2004 - August 2005
Date Received: 16/12/2004

Document Type: Letter from Sponsor - letter from Postgraduate Deanery for Kent, Surrey & Sussex
Dated: 29/09/2003
Date Received: 16/12/2004

Document Type: Compensation Arrangements - Letter from Department of Postgraduate GP Education
Dated: 10/12/2004
Date Received: 16/12/2004

Document Type: Interview Schedules/ Topic Guides
Version: 01e

Dated: 05/12/2004
Date Received: 16/12/2004
Document Type: Letters of Invitation to Participants
Version: 01c
Dated: 10/11/2004
Date Received: 16/12/2004

Document Type: Participant Information Sheet
Version: 01a
Dated: 10/11/2004
Date Received: 16/12/2004

Document Type: Participant Consent Form
Version: 01b
Dated: 10/11/2004
Date Received: 16/12/2004

Document Type: CV for Supervisor - Dr Michael Eraut
Date Received: 16/12/2004

Document Type: Letter from East Elmbridge and Mid Surrey PCT
Dated: 16/10/2003
Date Received: 16/12/2004

Provisional opinion

Issues discussed were: scientific design & conduct of the study, recruitment, care of participants, confidentiality and informed consent.

Dr Munro attended the meeting and clarified the following:

E. The Protocol needs to be altered to include these matters discussed at the meeting. The Committee was not sure that the study would achieve its objective in particular because it was not clear what would be in the career assessment instrument, how it was being developed and validated and the intention for future use. Dr Munro stated that as this was novel work the instrument was still under development and he needed to undertake some interviews but REC approval was required first.
F. With regard to recruitment the application form stated that between 60 and 120 participants would be enrolled in each cohort, but the table in A10 was confusing. Dr Munro referred to the table in question A10 of the application and stated that the pagination had become misaligned.
G. Methods of data anonymisation and password protection were not stated, and there was concern regarding confidentiality issues, in particular the recording of any interviews/discussion in the focus groups. Dr Munro stated that he was running the focus groups and that the data would be digitally recorded and stored safely on his laptop which was completely isolated; there would also be back up provision. All computers were password protected. He intended to keep the data longitudinally and acknowledged that he would need to seek new consent should he wish to use that data again in the future.
H. The Committee informed Dr Munro that specific consent should be sought for recording the interviews and for the use of direct quotes and

that a new Consent Form should be provided to accommodate these requirements.

The Committee felt that this is an important area to study and very valuable research particularly because recruitment and retention is difficult in GP practice.

The Committee would be content to give a favourable ethical opinion of the research, subject to receiving a complete response to the request for further information set out below.

Authority to consider your response and to confirm the Committee's final opinion has been delegated to the Chair.

Further information or clarification required

E. It was not clear whether all foundation year students were being approached or a minimum number. If it is all students, the Committee was unclear who had right of access to the list of students from the Deanery, or how the participants might otherwise be approached?
F. It was not clear in the application form where the interviews were being conducted.
G. With regard to the welfare of participants it was not clear what support is available for distress management or feelings of regret – is there an independent counsellor within the Deanery?
H. The Consent Form should include specific consent for recording the interviews and for the use of direct quotes. A template of the Consent Form can be downloaded from http://www.corec.org.uk

When submitting a response to the Committee, please send revised documentation where appropriate underlining or otherwise highlighting the changes you have made and giving revised version numbers and dates.

The Committee will confirm the final ethical opinion within a maximum of 60 days from the date of initial receipt of the application, excluding the time taken by you to respond fully to the above points. A response should be submitted by no later than 28 May 2005.

"No local investigator" status

The Committee agreed with your declaration that this is a "no local investigator" study. Site-specific assessment is not required for sites involved in the research and no information about the study needs to be submitted to Local Research Ethics Committees. However, you should arrange for the R&D Departments of all relevant NHS care organisations to be notified that the research will be taking place before the research commences.

Membership of the Committee

The members of the Ethics Committee who were present at the meeting are listed on the attached sheet.

Communication with sponsor and care organisation(s)

This communication is confidential but you may wish to you to forward copies to your sponsor and/or relevant NHS care organisation(s) for their information.

Statement of compliance

The Committee is constituted in accordance with the Governance Arrangements for Research Ethics Committees (July 2001) and complies fully with the Standard Operating Procedures for Research Ethics Committees in the UK.

REC reference number: 05/MRE12/1 Please quote this number on all correspondence

Yours sincerely,

Anna Howitt
Acting Administrator

E-mail: anna.howitt@berkshire.nhs.uk

Enclosures *List of names and professions of members who were present at the meeting*

Dr Neil Munro MMEd FRCGP
Little Orchard
Reigate Road
Leatherhead
Surrey KT22 8QY

16th February 2005

Dear Ms Howitt

Postgraduate attachment to general practice; influence on future career intentions
REC reference 05/MRE12/1

Thank you for your letter dated 25th January 2005. Responses to the four points raised on page of SL7, Provisional opinion are shown below

E. Our intention is to invite all doctors within the Kent, Surrey and Sussex Deanery, whose training includes a period of attachment to general practice during their second foundation year, to participate in the study. It is likely that a four month period of attachment during F2 will be approved by the Department of Health. Predicted numbers of potential participants are as stated in the submitted proposal i.e. circa 60. In the event of a shorter period of attachment being recommended number of participants could be higher. The aim remains to invite all those likely to experience a GP attachment during F2. Full operational details of foundation year programmes are only just emerging. It is envisaged that contracts of employment for foundation year doctors will be held by acute Trusts. All Trusts and Health Economies within the KSS Deanery will be informed of the proposed study, as well as the recommendations of Thames Valley MREC. Their local support will be sought. The Dean of Postgraduate GP Education, Professor Abdollah Tavabie, will hold, within KSS Deanery headquarters, relevant data on all doctors enrolled on F2 GP attachments as part of his training responsibilities. This data will be shared with the principal researcher but remain within Deanery control. Close liaison between the Postgraduate Dean, Professor Michael Eraut, academic supervisor, and the principal researcher will be maintained throughout the research period. Potential research participants, identified from the Deanery database, will be sent a letter of invitation (version 01c), participation information sheets (version 01a) and consent forms (version 01b1) from Dr Neil Munro, principal researcher. This model of contact has already been employed within the Deanery in an earlier MREC approved study.

F. Identified provisional sites for interviews include; the Kent, Surrey and Sussex Deanery, 7 Bermondsey Street, London SE1 2DD and the Postgraduate Education Centre, Royal Surrey Hospital, Guildford, Surrey. A flexible approach will be taken to interview sites depending on participant commitments and preference. Emphasis will be placed on providing an environment comfortable for the participant, protected from interruption and appropriate for recording purposes.

G. Throughout the KSS Deanery there is a network of clinical supervisors, GP tutors and educationalists whose prime role is to support and nurture career development among general practitioners in training as well as established practice. They are experienced practitioners who have received specific training in confidential career advice and guidance. They will be fully informed of the study and will provide both local and regional support to any doctors who may experience career regret as a result of participation in the research programme.

H. See revised Consent Form (version 01b1).

I hope this information is helpful. I would be pleased to clarify any further matters you may wish to raise.

Yours Sincerely

08 March 2005

Dr Neil Munro
General Practitioner
Little Orchard
Reigate Road
Leatherhead
Surrey
KT228QY

Dear Dr Munro

Full title of study:	**Postgraduate attachment to general practice; Influence on future career intentions**
REC reference number:	**05/MRE12/1**
Protocol number:	**Rev 09/12/04**

Thank you for your letter of 16 February 2005, responding to the Committee's request for further information on the above research, and enclosing the following revised documents:

Document Type:	Version:	Dated:	Date Received:
Participant Consent Form	01b1	12/02/2005	21/02/2005

The further information and revised documentation has been considered on behalf of the Committee by the Chairman.

The Committee was satisfied with the responses to points A and B.

However, the Committee would be grateful for a more complete response on the following points:

- The Committee would like you to make sure that doctors who are enrolled in your study not only receive information about internal support, but also that they should have access to other means of support such as the BMA confidential helpline. This needs to be inserted into the PIS.
- The Consent Form still needs to use the COREC national standard template which can be downloaded from www.corec.org.uk

Any further revised document submitted should be given a revised version number and date.

The 60 day clock for issue of a final ethical opinion on this application will re-start when the Committee has received a response on the outstanding points.

Yours sincerely,

Miss Anna Howitt
Administrator

Email: anna.howitt@berkshire.nhs.uk

Dr Neil Munro MMEd FRCGP
Little Orchard
Reigate Road
Leatherhead
Surrey KT22 8QY

15th March 2005

Dear Ms Howitt

Postgraduate attachment to general practice; influence on future career intentions
REC reference 05/MRE12/1

Thank you for your letter dated 8th March 2005. Responses to the two points raised on SL11 Further information not complete, are shown below

A Detailed investigation of services provided by the British Medical Association failed to reveal one specifically designed to give career advice to doctors. It is understood, however, that development of such a service is under active consideration. There are currently two services that offer support to doctors – the BMA Doctors for Doctors Unit and the BMA counselling service. The Doctors for Doctors Unit is committed to providing support for doctors in distress and difficulty by helping them make informed decisions about their health, working with them to gain insight, facilitating access to appropriate care and supporting them through this process. The unit has developed a resource pack as a self-help tool to aid doctors (http://www.bma.org.uk/ap.nsf/Content/Hubhealthandwellbeing). I spoke at length with Dr Michael Peters from the unit and supplied him with our research outline. Although not tasked with advising doctors directly on career options the Doctors for Doctors Unit offers confidential support to practitioners in difficulty and can be emailed oninfo.d4d@bma.org.uk. The BMA Counselling Service (08459 200169) is a 24-hours a day, 365 days a year service to help doctors and their families with work-related, emotional and personal problems.

B See revised Consent Form Version 01b2 (10/03/05). Please note minor amendment to paragraph 3 emphasising anonymity.

I hope this information is helpful. I enclose amended PIS (paragraph 7 has changed) and applicants check list. I would be pleased to clarify any further matters you may wish to raise.

At the ethical review on 18th January 2005 the Chairman intimated that he would like to see the questionnaire developed as a result of interview and focus group work. Does this requirement still pertain? If it does, to whom should I send the final questionnaire when it is ready? What other information will you require e.g. specific consent form and participant information sheet?

Yours Sincerely

29 March 2005

Dr Neil Munro
General Practitioner
Little Orchard
Reigate Road
Leatherhead
Surrey
KT228QY

Dear Dr Munro

Full title of study:	***Postgraduate attachment to general practice;Influence on future career intentions***
REC reference number:	***05/MRE12/1***
Protocol number:	***N/A***

Thank you for your letter of 15 March 2005, responding to the Committee's request for further information on the above research and submitting revised documentation.

The further information has been considered on behalf of the Committee by the Acting Chair.

Confirmation of ethical opinion

On behalf of the Committee, I am pleased to confirm a favourable ethical opinion for the above research on the basis described in the application form, protocol and supporting documentation as revised.

The Committee has designated this study as having "no local investigators". There is no requirement for Local Research Ethics Committees to be informed or for site-specific assessment to be carried out at each site.

Conditions of approval

The favourable opinion is given provided that you comply with the conditions set out in the attached document. You are advised to study the conditions carefully.

Please also be aware that if a questionnaire is developed from this study for future use then this should be considered a new study and an application should be made in the usual way.

Approved documents

The final list of documents reviewed and approved by the Committee is as follows:

Document Type:	Version:	Dated:	Date Received:
Application		09/12/2004	16/12/2004
Investigator CV - Dr Neil Munro			16/12/2004
Protocol	Rev 09/12/2004		16/12/2004
Covering Letter		09/12/2004	16/12/2004
Summary/Synopsis - Planning Phases for August 2004 - August 2005	01d		16/12/2004
Letter from Sponsor - letter from Postgraduate Deanery for Kent, Surrey & Sussex		29/09/2003	16/12/2004
Compensation Arrangements - Letter from Department of Postgraduate GP Education		10/12/2004	16/12/2004
Interview Schedules/Topic Guides	01e	05/12/2004	16/12/2004
Letters of Invitation to Participants	01c	10/11/2004	16/12/2004
Participant Information Sheet	01a	10/11/2004	16/12/2004
Participant Information Sheet	01a1	12/03/2005	21/03/2005
Participant Consent Form	01b2	12/03/2005	21/03/2005
Participant Consent Form	01b1	12/02/2005	21/02/2005
Participant Consent Form	01b	10/11/2004	16/12/2004
Response to Request for Further Information		15/03/2005	21/03/2005
Response to Request for Further Information	1	16/02/2005	21/02/2005
- Letter from East Elmbridge and Mid Surrey PCT		16/10/2003	16/12/2004
- CV for Supervisor - Dr Michael Eraut			16/12/2004

Management approval

You should arrange for all relevant NHS care organisations to be notified that the research will be taking place, and provide a copy of the REC application, the protocol and this letter.

All researchers and research collaborators who will be participating in the research must obtain management approval from the relevant care organisation before commencing any research procedures. Where a substantive contract is not held with the care organisation, it may be necessary for an honorary contract to be issued before approval for the research can be given.

Membership of the Committee

The members of the Ethics Committee who were present at the meeting are listed on the attached sheet.

Notification of other bodies

The Committee Administrator will notify the research sponsor that the study has a favourable ethical opinion.

Statement of compliance

The Committee is constituted in accordance with the Governance Arrangements for Research Ethics Committees (July 2001) and complies fully with the Standard Operating Procedures for Research Ethics Committees in the UK.

05/MRE12/1	**Please quote this number on all correspondence**

With the Committee's best wishes for the success of this project,

Yours sincerely,

Mrs H Willson
Acting Chair
E-mail:anna.howitt@berkshire.nhs.uk

Thames Valley Multi-centre Research Ethics Committee

Meeting on 18 January 2005

Attendance:

Dr Gwen Adshead	Consultant Psychiatrist
Mr Paul Allen	Oral and Dental Surgeon
Dr Adrian Bennett	GP
Dr Christopher Cheetham	Consultant Paediatrician
Mrs Janice Gabriel	Consultant Cancer Nurse
Mr Andrew Gillian	Pharmacist
Mr John Hughes	Medical Statistician
Rev Elizabeth Jackson	Lay member
Dr David Parker	GP
Mr Peter Tausig	Vice-Chairman, Lay member
Mrs Heather Willson	Acute Pain Nurse

29 March 2005

Prof Abdollah Tavabie
Kent, Surrey and Sussex Deanery
7 Bermondsey Street
London
SE12DD

Dear Prof Abdollah Tavabie,

Full title of study:	***Postgraduate attachment to general practice;Influence on future career intentions***
REC reference number:	***05/MRE12/1***
Protocol number:	***N/A***

The Research Ethics Committee has reviewed the above application in accordance with the standard operating procedures for RECs.

The Committee has issued a favourable ethical opinion of the application.

The Chief Investigator has been notified of the Committee's opinion in our letter of 29 March 2005. The letter gives full details of the documents reviewed.

The Committee has designated this study as having "no local investigators". There is no requirement for Local Research Ethics Committees to be informed or for site-specific assessment to be carried out at each site.

Statement of compliance

The Committee is fully compliant with the Regulations as they relate to ethics committees and the conditions and principles of good clinical practice.

The Committee is constituted in accordance with the Governance Arrangements for Research Ethics Committees (July 2001) and complies fully with the Standard Operating Procedures for Research Ethics Committees in the UK.

05/MRE12/1	**Please quote this number on all correspondence**

Yours sincerely,

Miss Anna Howitt
Administrator
Committee Administrator
E-mail:anna.howitt@berkshire.nhs.uk

Acute and Primary Care Trusts Granting Study Approval

Kent, Surrey and Sussex Deanery 2005-2008

Acute Trusts

Kent

- Dartford and Gravesham NHS trust
- Medway NHS Trust
- East Kent Hospitals NHS Trust
- Maidstone and Tunbridge Wells NHS Trust

Surrey and Sussex

- Ashford and St Peters Hospitals NHS Trust
- Brighton and Sussex University Hospitals NHS Trust
- East Sussex Hospitals NHS Trust
- Frimley Park Hospital NHS Trust
- Royal Surrey County Hospital NHS Trust
- Royal West Sussex NHS Trust
- Surrey and Sussex Healthcare NHS Trust
- The Queen Victoria Hospital NHS Foundation Trust

Primary Care Trusts

Kent

- Eastern and Coastal Kent Primary Care Trust
- Medway Primary Care Trust
- West Kent Primary Care Trust

Surrey

- East Elmbridge and Mid Surrey Primary Care Trust
- East Surrey Primary Care Trust
- Guildford and Waverley Primary Care Trust
- North Surrey Primary Care Trust
- Surrey Heath and Woking Primary Care Trust

Sussex

The Sussex NHS Research Consortium covered the following Trusts:

- Adur, Arun and Worthing Primary Care Trust
- Bexhill and Rother Primary Care Trust
- Brighton and Hove City Primary Care Trust
- Crawley Primary Care Trust
- Eastbourne Downs Primary Care Trust
- East Sussex County Healthcare NHS Trust
- Hastings and St Leonards Primary Care Trust
- Horsham and Canterbury Primary Care Trust
- Mid Sussex Primary Care Trust
- South Downs Health NHS Trust
- Sussex Downs and Weald Primary Care Trust
- Western Sussex Primary Care Trust
- West Sussex Health and Social Care NHS Trust
- Worthing and Southlands Hospitals NHS Trust

In addition to initial approval, all Trusts sought annual reports and completion of study submissions.

APPENDIX E

Figures

Figure 1 Frequency of scale within study population (n=112)

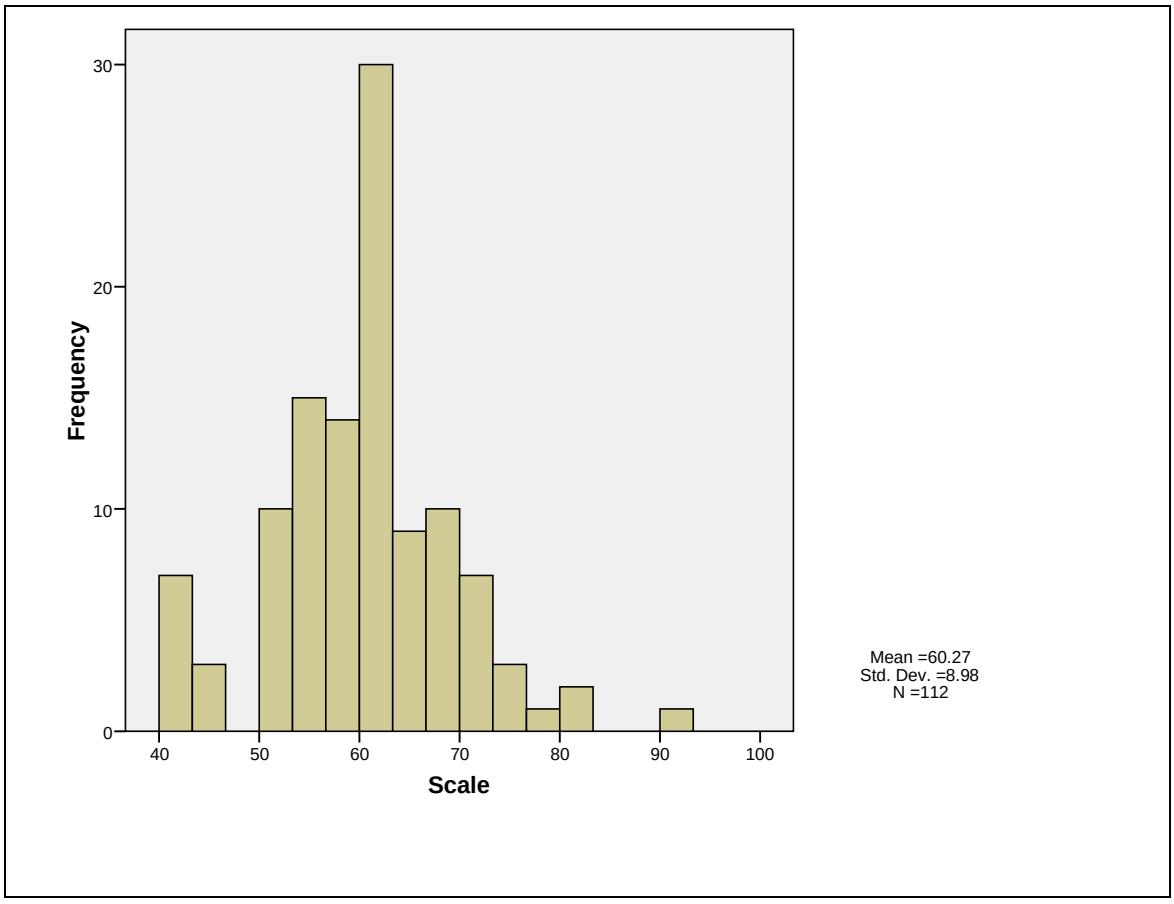
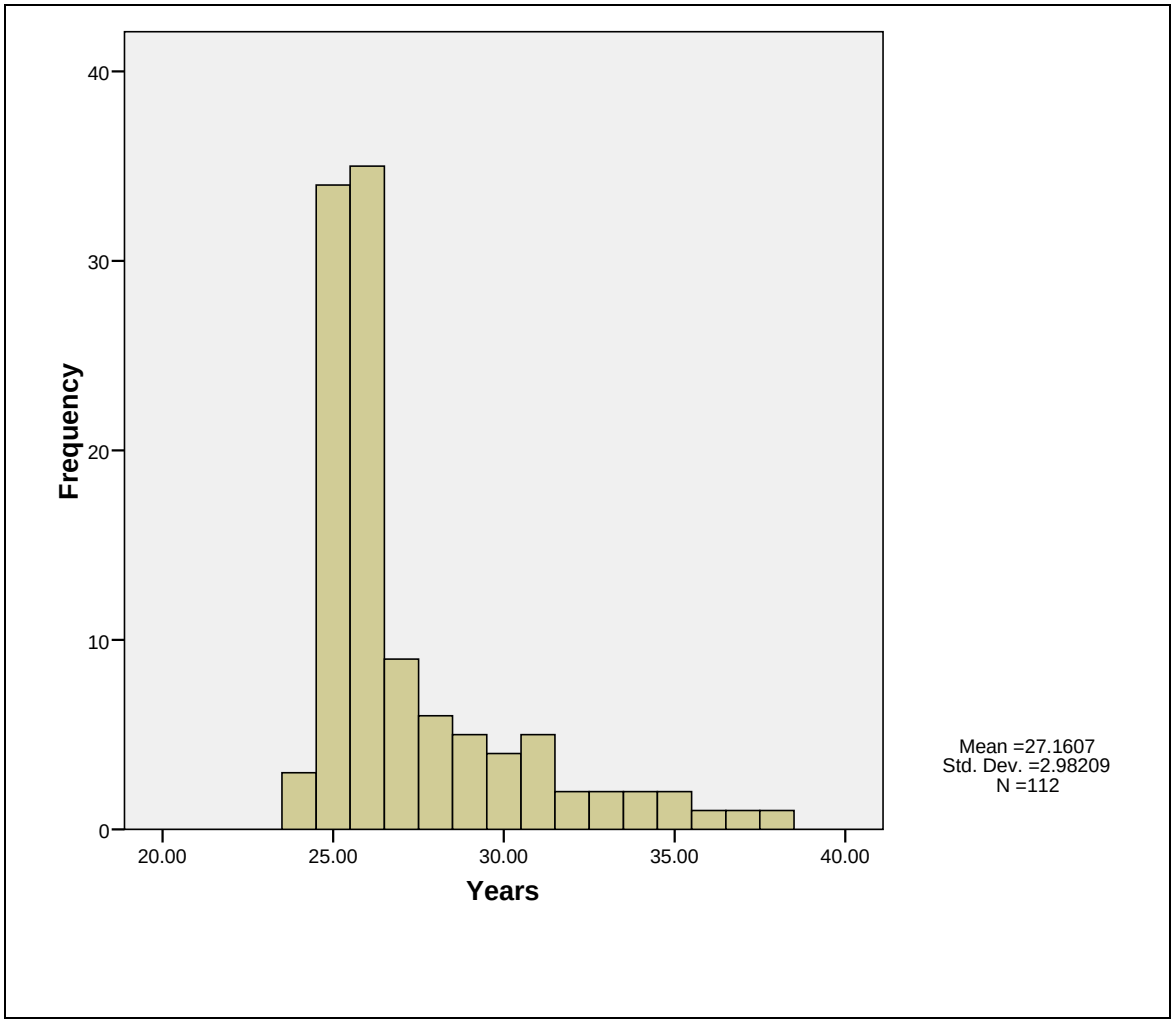


Figure 2 Distribution of participants (age in years)



Tables

Table 1 Mean rank positions for general practice (Year 1 and 2)

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
Q1	112	1.00	57.00	23.8125	11.83104
Q2	112	2.00	51.00	22.4643	12.75333
Valid N (listwise)	112				

Table 2 Year 1 and 2 Wilcoxon signed ranks test (n=112)

Ranks

		N	Mean Rank	Sum of Ranks
Q2 - Q1	Negative Ranks	64[a]	53.97	3454.00
	Positive Ranks	43[b]	54.05	2324.00
	Ties	5[c]		
	Total	112		

a. Q2 < Q1

b. Q2 > Q1

c. Q2 = Q1

Test Statistics[b]

	Q2 - Q1
Z	-1.758[a]
Asymp. Sig. (2-tailed)	.079

a. Based on positive ranks.

b. Wilcoxon Signed Ranks Test

Table 3 Mean rank positions for general practice (Year 1)

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
Q1	34	4.00	57.00	22.0294	12.36928
Q2	34	2.00	51.00	20.0294	13.07435
Valid N (listwise)	34				

Table 4 Year 1 Wilcoxon signed ranks test (n=34)

Ranks

		N	Mean Rank	Sum of Ranks
Q2 - Q1	Negative Ranks	23[a]	16.46	378.50
	Positive Ranks	10[b]	18.25	182.50
	Ties	1[c]		
	Total	34		

a. Q2 < Q1

b. Q2 > Q1

c. Q2 = Q1

Test Statistics[b]

	Q2 - Q1
Z	-1.753[a]
Asymp. Sig. (2-tailed)	.080

a. Based on positive ranks.

b. Wilcoxon Signed Ranks Test

Table 5 Mean rank positions for general practice (Year 2)

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
Q1	78	1.00	49.00	24.5897	11.58418
Q2	78	2.00	50.00	23.5256	12.54780
Valid N (listwise)	78				

Table 6 Year 2 Wilcoxon signed ranks test (n=78)

Ranks

		N	Mean Rank	Sum of Ranks
Q2 - Q1	Negative Ranks	41[a]	38.01	1558.50
	Positive Ranks	33[b]	36.86	1216.50
	Ties	4[c]		
	Total	78		

a. Q2 < Q1
b. Q2 > Q1
c. Q2 = Q1

Test Statistics[b]

	Q2 - Q1
Z	-.923[a]
Asymp. Sig. (2-tailed)	.356

a. Based on positive ranks.
b. Wilcoxon Signed Ranks Test

Table 7 Mean rank positions for general practice (Upper 38)

	N	Minimum	Maximum	Mean	Std. Deviation
Q1	38	1.00	18.00	10.9474	4.52589
Q2	38	2.00	33.00	13.1316	8.43471
Valid N (listwise)	38				

The mean change in ranking is down 2.2 ranks

Table 8 Mean rank positions for general practice (Lower 38)

	N	Minimum	Maximum	Mean	Std. Deviation
Q1	38	31.00	57.00	37.2632	5.43106
Q2	38	4.00	51.00	33.5789	10.38614
Valid N (listwise)	38				

The mean change in ranking is up 3.7 ranks

Table 9 Mean rank positions for general practice (Upper 56)

	N	Minimum	Maximum	Mean	Std. Deviation
Q1	56	1.00	22.00	13.9286	5.77725
Q2	56	2.00	36.00	14.4107	8.96412
Valid N (listwise)	56				

The mean change in ranking is down 0.5 ranks

Table 10 Mean rank positions for general practice (Lower 56)

	N	Minimum	Maximum	Mean	Std. Deviation
Q1	56	23.00	57.00	33.6964	7.08371
Q2	56	4.00	51.00	30.5179	10.76187
Valid N (listwise)	56				

The mean change in ranking is up 3.2 ranks

Table 11 T-test comparing *'Q1 to Q2 movement'* with upper and lower 38 Q1 positions

	Upper 38 Q1 positions	*Lower 38 Q1 positions*
Mean 'Q1 to Q2 movement'	62.68421053	57.05263
Variance	85.84352774	60.05121
Observations	38	38
Hypothesized Mean Difference	0	
df	72	
t Stat	2.874101905	
P(T<=t) one-tail	0.002661399	
t Critical one-tail	1.666293697	
P(T<=t) two-tail	0.005322798	
t Critical two-tail	1.993463539	

Table 12 T-test comparing *'Q1 to Q2 movement'* with upper and lower 56 Q1 positions

	Upper 56 Q 1 positions	*Lower 56 Q1 positions*
Mean 'Q1 to Q2 movement'	62.05357	58.48214
Variance	81.10617	75.16331
Observations	56	56
Hypothesized Mean Difference	0	
df	110	
t Stat	2.137957	
P(T<=t) one-tail	0.017367	
t Critical one-tail	1.658824	
P(T<=t) two-tail	0.034734	
t Critical two-tail	1.981765	

Table 13 Kolomgorov-Smirnov Test for '*Q1 to Q2 movement*'

One-Sample Kolmogorov-Smirnov Test

		Scale
N		112
Normal Parameters[a,b]	Mean	60.27
	Std. Deviation	8.980
Most Extreme Differences	Absolute	.086
	Positive	.086
	Negative	-.085
Kolmogorov-Smirnov Z		.908
Asymp. Sig. (2-tailed)		.381

a. Test distribution is Normal.

b. Calculated from data.

Table 14 T-test comparing UK Nationals and non UK Nationals

	UK Nationals	*Non-UK Nationals*
Mean Scale	60	61.11111111
Variance	70.57142857	115.3333333
Observations	85	27
Hypothesized Mean Difference	0	
df	37	
t Stat	-0.491918718	
P(T<=t) one-tail	0.312841401	
t Critical one-tail	1.687093597	
P(T<=t) two-tail	0.625682802	
t Critical two-tail	2.026192447	

Table 15 Correlation matrix

Pearson's r Correlations n=112
(Two-tailed sig.)

	Scale	Gender	Age	Marriage	Nationality	University	Cohort
Scale	1	.114	-.099	.041	.042	-.028	.085
		(.230)	(.301)	(.664)	(.657)	(.768)	(.372)
Gender	.114	1	-.230*	-.039	-.079	-.257**	.017
	(.230)		(.015)	(.686)	(.405)	(.006)	(.859)
Age	-.099	-.230*	1	.490**	.185	.513**	.073
	(.301)	(.015)		(.000)	(.051)	(.000)	(.445)
Marriage	.041	-.039	.490**	1	.219*	.460**	-.124
	(.664)	(.686)	(.000)		(.020)	(.000)	(.194)
Nationality	.042	-.079	.185	.219*	1	.470**	-.040
	(.657)	(.405)	(.051)	(.020)		(.000)	(.678)
University	-.028	-.257**	.513**	.460**	.470**	1	-.129
	(.768)	(.006)	(.000)	(.000)	(.000)		(.176)
Cohort	.085	.017	.073	-.124	-.040	-.129	1
	(.372)	(.859)	(.445)	(.194)	(.678)	(.176)	

Table 16 All participants linear regression analysis (age, nationality and gender) includes variables entered, model summary, ANOVA and coefficients

Variables Entered/Removed[b]

Model	Variables Entered	Variables Removed	Method
1	Nationality, Gender, Age[a]	.	Enter

a. All requested variables entered.

b. Dependent Variable: Scale

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.151[a]	.023	-.004	9.000

a. Predictors: (Constant), Nationality, Gender, Age

ANOVA[b]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	204.520	3	68.173	.842	.474[a]
	Residual	8747.445	108	80.995		
	Total	8951.964	111			

a. Predictors: (Constant), Nationality, Gender, Age

b. Dependent Variable: Scale

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	63.022	9.164		6.877	.000
	Gender	1.806	1.777	.099	1.016	.312
	Age	-.265	.299	-.088	-.887	.377
	Nationality	1.247	1.815	.067	.687	.494

a. Dependent Variable: Scale

Table 17 All participants linear regression analysis (age, nationality, gender and cohort) includes variables entered, model summary, ANOVA and coefficients

Variables Entered/Removed[b]

Model	Variables Entered	Variables Removed	Method
1	Cohort, Gender, Nationality, Age[a]	.	Enter

a. All requested variables entered.

b. Dependent Variable: Scale

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.177[a]	.031	-.005	9.002

a. Predictors: (Constant), Cohort, Gender, Nationality, Age

ANOVA[b]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	281.872	4	70.468	.870	.485[a]
	Residual	8670.093	107	81.029		
	Total	8951.964	111			

a. Predictors: (Constant), Cohort, Gender, Nationality, Age

b. Dependent Variable: Scale

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	61.076	9.380		6.511	.000
	Gender	1.750	1.779	.096	.984	.328
	Age	-.290	.300	-.096	-.968	.335
	Nationality	1.341	1.818	.072	.737	.462
	Cohort	1.680	1.719	.093	.977	.331

a. Dependent Variable: Scale

Table 18 Participant numbers

Study

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1.00	34	30.4	30.4	30.4
	2.00	78	69.6	69.6	100.0
	Total	112	100.0	100.0	

Table 19 Participants gender

Gender

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Male	46	41.1	41.1	41.1
	Female	66	58.9	58.9	100.0
	Total	112	100.0	100.0	

Table 20 Participants marital status

Marriage

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Single	84	75.0	75.0	75.0
	Married	27	24.1	24.1	99.1
	divorced/seperated	1	.9	.9	100.0
	Total	112	100.0	100.0	

Table 21 Number of children

Children

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0 children	103	92.0	92.0	92.0
	1 child	5	4.5	4.5	96.4
	2 or more children	4	3.6	3.6	100.0
	Total	112	100.0	100.0	

Table 22 Participant nationality

Nationality

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	UK	85	75.9	75.9	75.9
	EEA not UK	5	4.5	4.5	80.4
	Rest of world	22	19.6	19.6	100.0
	Total	112	100.0	100.0	

Table 23 University of undergraduate training

University

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	UK	79	70.5	70.5	70.5
	EEA not UK	5	4.5	4.5	75.0
	Rest of world	28	25.0	25.0	100.0
	Total	112	100.0	100.0	

Table 24 Raw Data Table (Year 1 and 2) including *'Q1 to Q2 movement'*, dichotomous variables and legend.

Q1-Q2	Gender	Age(y)	Marriage	Children	Nationality	University	Cohort	Study	Q 1	Q2
65	1	27.00	1	1	1	2	1.00	1.00	31.00	25.00
60	2	25.00	1	1	1	1	1.00	1.00	21.00	20.00
64	2	25.00	1	1	1	1	1.00	1.00	33.00	28.00
66	2	24.00	1	1	1	1	1.00	1.00	10.00	3.00
69	2	26.00	1	1	1	1	1.00	1.00	19.00	9.00
65	1	30.00	2	1	2	2	1.00	1.00	14.00	8.00
73	1	26.00	1	1	2	2	1.00	1.00	27.00	13.00
43	2	24.00	1	1	1	1	1.00	1.00	4.00	20.00
52	2	26.00	1	1	2	2	1.00	1.00	5.00	2.00
56	2	25.00	1	1	1	1	1.00	1.00	18.00	11.00
50	2	25.00	1	1	1	1	1.00	1.00	35.00	46.00
72	1	25.00	1	1	1	1	1.00	1.00	15.00	2.00
57	1	26.00	1	1	1	1	1.00	1.00	6.00	8.00
50	1	35.00	2	1	2	2	1.00	1.00	18.00	27.00
64	2	26.00	1	1	2	1	1.00	1.00	23.00	18.00
54	1	28.00	1	1	2	1	2.00	1.00	31.00	36.00
72	2	25.00	1	1	1	1	2.00	1.00	23.00	10.00
75	2	27.00	1	1	1	1	2.00	1.00	20.00	4.00
64	1	26.00	1	1	2	2	2.00	1.00	39.00	34.00
62	1	38.00	2	2	1	1	2.00	1.00	40.00	37.00
61	1	27.00	1	1	1	1	2.00	1.00	10.00	8.00
65	1	26.00	1	1	2	1	2.00	1.00	57.00	51.00
67	2	24.00	1	1	1	1	2.00	1.00	39.00	31.00

Q1-Q2	Gender	Age(y)	Marriage	Children	Nationality	University	Cohort	Study	Q 1	Q2
68	2	25.00	1	1	1	1	2.00	1.00	8.00	17.00
60	2	25.00	2	1	1	1	2.00	1.00	11.00	10.00
64	2	31.00	2	1	2	2	3.00	1.00	19.00	14.00
43	1	36.00	1	1	2	2	3.00	1.00	19.00	35.00
59	1	26.00	1	1	1	1	3.00	1.00	8.00	8.00
58	2	25.00	1	1	1	1	3.00	1.00	25.00	26.00
61	2	27.00	1	1	1	1	3.00	1.00	39.00	37.00
63	2	25.00	1	1	1	1	3.00	1.00	24.00	20.00
56	1	25.00	1	1	1	1	3.00	1.00	9.00	12.00
60	2	30.00	1	1	1	1	3.00	1.00	32.00	31.00
56	2	35.00	2	2	1	2	3.00	1.00	17.00	20.00
54	1	25.00	1	1	2	1	1.00	2.00	40.00	45.00
46	1	28.00	2	1	1	2	1.00	2.00	10.00	23.00
41	2	25.00	1	1	1	1	1.00	2.00	23.00	41.00
58	1	26.00	1	1	1	1	1.00	2.00	1.00	2.00
61	2	26.00	1	1	1	1	1.00	2.00	20.00	18.00
62	1	26.00	1	1	1	1	1.00	2.00	49.00	46.00
63	1	26.00	1	1	1	1	1.00	2.00	45.00	41.00
73	1	26.00	2	1	2	2	1.00	2.00	20.00	6.00
44	2	28.00	1	1	1	1	1.00	2.00	14.00	29.00
53	2	26.00	2	1	1	1	1.00	2.00	31.00	27.00
55	2	33.00	1	1	1	1	1.00	2.00	9.00	13.00
57	2	25.00	1	1	1	1	1.00	2.00	42.00	44.00
56	2	31.00	2	1	2	2	1.00	2.00	13.00	16.00
61	2	25.00	2	1	1	1	1.00	2.00	31.00	29.00

Q1-Q2	Gender	Age(y)	Marriage	Children	Nationality	University	Cohort	Study	Q 1	Q2
42	1	26.00	2	1	2	2	1.00	2.00	19.00	36.00
42	1	30.00	1	1	1	2	1.00	2.00	16.00	33.00
52	1	26.00	1	1	1	1	1.00	2.00	33.00	40.00
67	2	31.00	2	2	2	2	1.00	2.00	41.00	33.00
61	2	26.00	1	1	1	1	1.00	2.00	36.00	34.00
61	2	25.00	1	1	1	1	1.00	2.00	11.00	9.00
65	2	29.00	1	1	2	2	1.00	2.00	31.00	25.00
61	2	25.00	1	1	1	1	1.00	2.00	19.00	17.00
70	1	29.00	2	2	1	2	1.00	2.00	35.00	24.00
62	2	25.00	2	1	1	1	1.00	2.00	16.00	13.00
53	1	32.00	1	1	1	2	1.00	2.00	41.00	47.00
63	1	34.00	2	1	1	2	1.00	2.00	26.00	22.00
62	2	25.00	1	1	1	1	1.00	2.00	11.00	8.00
69	2	25.00	1	1	1	1	1.00	2.00	13.00	3.00
62	1	29.00	2	1	2	2	1.00	2.00	32.00	29.00
93	2	25.00	2	1	2	1	1.00	2.00	38.00	4.00
61	2	25.00	1	1	1	1	1.00	2.00	4.00	2.00
44	1	30.00	2	2	1	2	1.00	2.00	35.00	50.00
60	1	26.00	1	1	1	1	1.00	2.00	40.00	41.00
75	2	25.00	1	1	1	1	1.00	2.00	21.00	5.00
56	2	27.00	1	1	2	2	1.00	2.00	36.00	39.00
56	2	28.00	1	1	1	1	2.00	2.00	31.00	34.00
58	1	26.00	1	1	1	2	2.00	2.00	18.00	19.00
63	2	25.00	1	1	1	2	2.00	2.00	35.00	30.00
80	2	26.00	1	1	2	2	2.00	2.00	33.00	12.00

Q1-Q2	Gender	Age(y)	Marriage	Children	Nationality	University	Cohort	Study	Q 1	Q2
61	1	25.00	1	1	1	1	2.00	2.00	10.00	8.00
58	2	26.00	1	1	1	1	2.00	2.00	5.00	6.00
60	1	28.00	1	1	2	1	2.00	2.00	20.00	19.00
54	2	26.00	2	1	1	1	2.00	2.00	18.00	23.00
62	2	26.00	1	1	1	1	2.00	2.00	12.00	9.00
42	1	25.00	1	1	1	1	2.00	2.00	4.00	21.00
52	1	26.00	1	1	1	1	2.00	2.00	10.00	17.00
67	2	26.00	1	1	1	1	2.00	2.00	22.00	14.00
56	2	25.00	1	1	1	1	2.00	2.00	12.00	15.00
72	2	25.00	1	1	1	1	2.00	2.00	22.00	9.00
51	1	25.00	1	1	1	1	2.00	2.00	21.00	29.00
57	2	27.00	1	1	2	1	2.00	2.00	42.00	44.00
63	1	26.00	1	1	2	2	2.00	2.00	33.00	29.00
55	2	26.00	1	1	2	1	2.00	2.00	23.00	27.00
68	2	25.00	1	1	1	1	2.00	2.00	25.00	16.00
67	2	25.00	1	1	1	1	2.00	2.00	22.00	14.00
59	2	27.00	1	1	1	1	2.00	2.00	13.00	13.00
62	1	26.00	1	1	1	1	2.00	2.00	23.00	20.00
41	1	26.00	1	1	1	1	3.00	2.00	12.00	30.00
68	2	26.00	1	1	1	1	3.00	2.00	26.00	17.00
56	2	29.00	1	1	1	2	3.00	2.00	22.00	25.00
57	2	32.00	2	1	1	1	3.00	2.00	15.00	17.00
77	1	37.00	2	2	1	2	3.00	2.00	41.00	23.00
52	2	26.00	1	1	1	1	3.00	2.00	28.00	35.00
59	1	27.00	1	1	1	2	3.00	2.00	39.00	39.00

Q1-Q2	Gender	Age(y)	Marriage	Children	Nationality	University	Cohort	Study	Q 1	Q2
55	1	34.00	2	1	1	1	3.00	2.00	20.00	24.00
76	1	31.00	2	2	1	2	3.00	2.00	39.00	22.00
50	2	29.00	2	2	2	2	3.00	2.00	23.00	32.00
61	2	33.00	2	2	2	2	3.00	2.00	33.00	31.00
73	1	28.00	1	1	1	1	3.00	2.00	30.00	16.00
61	2	25.00	1	1	1	1	3.00	2.00	39.00	37.00
59	1	25.00	1	1	1	1	3.00	2.00	35.00	35.00
67	2	26.00	1	1	1	1	3.00	2.00	18.00	10.00
59	2	25.00	2	1	1	1	3.00	2.00	11.00	11.00
61	2	27.00	1	1	1	1	3.00	2.00	5.00	3.00
56	1	26.00	1	1	1	1	3.00	2.00	29.00	32.00
81	1	26.00	1	1	1	1	3.00	2.00	35.00	13.00
62	2	31.00	2	1	2	2	3.00	2.00	31.00	28.00
57	2	26.00	1	1	1	1	3.00	2.00	31.00	33.00

Legend

Q1-Q2	Q1 to Q2 movement
Gender	1=male, 2=female
Age	in years
Marriage	1 = single/separated/divorced, 2 = married
Children	1= 0 children, 2= 1 or more children
Nationality	1= UK national, 2= non-UK national
University	1= UK university, 2= non-UK university

Cohort	1= Aug to Nov, 2= Dec to March, 3= April to July GP attachments
Study	1= year 1 participants, 2= year 2 participants
Q1	Ranking on 1st questionnaire
Q2	Ranking on 2nd questionnaire

APPENDIX F

Table 1 Themes from Thirty Interviews (NM)

When very young

Wish to be doctors from a young age
Inspirational doctors
Supportive family
Social standing of medicine
Uncertainty in direction
Change in career intent
Early experiences of medicine
Family modelling
Work experience
Work-life balance
Travel and adventure

Undergraduate and early working

Enjoyed all subjects
Specific dislikes
Excitement of acute medicine
Impact of A&E
Hospital workload
Teamwork in hospital
Status of hospital doctors
Learning by osmosis
Hospital view of GPs
GP experience
Variable background GP experience
Role models during training
Structured teaching in GP

F2 experience

Variable induction programmes
Quality of supervision
Friendliness in practice
Practicing alone
Social isolation
Limited on call
Challenging medicine
Having to decide
Learning versus working
Learner led training
Different types of doctors
Treated as equal
No easy option
Compulsory versus voluntary
Value for specialists
Gap in middle of day

MTAS

Demoralisation
Geographic displacement
Working abroad
Medicine not a career for life
Unemployment
No control over career trajectory
Too early to choose

Table 2 Themes from Thirty Interviews based on the first (alphabetically) 13 scripts in 2007 (ME)

1. Before medical school

When did their interest in becoming a doctor (or any other health professional) begin?
Factors influencing participants before the age of 16
Early experiences of medicine
Family models
Supportive families
Inspirational doctors
Social standing of medicine
Factors influencing participants between the age of 16 and entering medical school
Choices for AS/A levels, with medicine or other health care in mind
Choices for degree programmes other than medicine
Work experience in healthcare settings
Extensive travel or a gap year

2. Medical school and HO/F1

Limitations of medical schools
Subjects enjoyed or disliked
Role models of doctors
Reasons for choices of subjects and projects
Working in hospital environments
Teamwork
Doctors' workloads
Status of doctors
Quality of formal teaching
Quality of informal learning
Treatment of students
Formal teaching by GPs
Placements in general practice
Hospital communication with GPs
Hospital view of GPs
Choice of HO/F1 placements
Experience of being HOs/F1s
Working abroad
Work-life balance

F2 Experiences

Involvement in GP activities
Compulsory versus voluntary for trainees
Understanding GPs' roles
Understanding roles of other GP based professionals
GPs with specialities
Visits to patient homes
Visits to care homes
Palliative care

Continuity of care
Visits to another GP practice
Public health connection
Pharmaceutical issues
Following up referrals
Limited on call experience
Challenging medicine
Making own decisions
Deciding to wait rather than act
Developing consultation styles that can be adapted to the patient

Practice environments
Unsuitable practices for training
Friendly atmosphere
Work ethic
Treated as equal
Work ethic
Altruism

Teaching and learning
Variable induction programmes
Quality and timing of supervision
Seeing different doctors consultation styles
Role and extent of formal teaching
One to one training
Regular discussions after surgeries
Informal learning through discussion and observation
Quality of feedback
Use of video for feedback
Fine tuning of practice through discussing differences between patients with the same condition

APPENDIX G

Dear Colleagues

Postgraduate attachment to General Practice: influence on future career intent

UPDATE MAY 2006

I thought I would bring you, as a participant, up to date on the above research being carried out in the Kent, Surrey and Sussex Deanery .The impact of an F2 GP attachment on career intent is being formally evaluated by before and after questionnaires supplemented by information analysed from interviews of F2 doctors. As I write I have been posting out reminders to those April 2006 starters who have not yet sent back their first questionnaire.50 of you are involved in the study for the year August 2005 to July 2006.

Overall Questionnaire Response Rates (August 2005 to March 2006)

Your response to the sci 45 questionnaire has been tremendous. On aggregate 82% of you returned the first questionnaire in the first eight months of the study with 70% of you returning both. This is a very respectable return rate in survey terms but obviously the more the better. Sci 45 is a validated career intent tool that has been extensively researched and used in medical education. It is, however, quite long in its written format and I appreciate your forbearance in this respect.

August 2005 Starters (August 2005 to November 2005 F2 GP Attachment)

For those starting in August 2005 the response rate was a remarkable 100% for the first questionnaire with 80% returning a second. A few have not completed the questionnaire post your 4 month attachment. I attach a further sci 45. I would be more than grateful if you could fill this in and email/post it back to me. I will then be able to compare your responses for the first questionnaire to each of the 130 items you answered first time around. It seems such a shame not to have the comparative post-attachment information

December 2005 Starters (December 2005 to March 2006 F2 Attachment)

Of the 57% who completed a first questionnaire in the December 2005 starters 88% returned the second sci 45.Again completion of a post 4 month attachment questionnaire would be very helpful. Any advice on how to improve the forms or the paperwork would be welcome. I would also be interested to hear if the questionnaires are reaching your in trays every time!!

Please return questionnaire to me: Dr Neil Munro MMEd FRCGP, Little Orchard, Reigate Road, Leatherhead, Surrey KT22 8QY Mobile 07776181505 Home 01372 372250 Surgery 01372 467657

As soon as the data collection for this first year is complete (circa August 2006) it will be possible to produce quantifiable information on changes in career intent among those of you in the F2 year August 2005 - July 2006.I will share this analysis as soon as it is ready. I am being assisted in this by Dr Rodney Gale and Professor Janet Grant who originally developed sci 45.

Interviews

In addition to questionnaires interviews, (face to face and by telephone) have been conducted. So far four doctors have been interviewed in the pilot phase and five from the first four months. I have emailed those who finished in March 2006 and said that they were prepared to be interviewed and am in the process of fixing times and dates with some of you. Invitations to those of you starting GP attachments in April 2006 will go out shortly after you complete in July 2006. The content of the interviews is transcribed and you are asked to amend and/or approve each transcription. Any reference from the transcripts used in reports/papers will be anonymised and made unrecognisable. The information from interviews so far is rich in lessons for the profession. Discussion is based around a career map which enables you to think about the important decisions in your professional lives. Insights and personal experiences are very important to all of us. In addition we look at how you learned and progressed through your four months in general practice. I attach the paperwork that accompanies each interview.

If you have completed your 4 months and would like to talk for about 20-30 minutes about your experiences please contact me at any time. My mobile is nearly always switched on. I only need about 15 minutes to set up recording equipment for telephone interviews (I am home most evenings during the week and during the day at weekends) and am more than happy to travel to meet you for a face to face interview at a mutually convenient time. I have been to the east, south and middle of KSS so far and am beginning to know the region well!!

Updates

If you do want to receive these updates please let me know and I will remove your name from the Group Contacts. Equally if you know of anyone who would like to be included please ask them to contact me and I will do so. Please encourage your F2 colleagues to complete the questionnaires in the same way as you have - response rates have been a little lower lately (only 38% responded to the first mailing of the first questionnaire in the April 2006 starters (Easter period) - hopefully this will pick up with the reminders sent out today).Whatever your experience of general practice I am keen to know how you fared. The interviews will enrich the data being gathered and help improve training for those who follow.

Do also please share this update with your educational supervisors.

I am very happy to answer any questions you may have. Thank you for continuing to support this research. I anticipate two to three time the number of F2 doctors taking part in the study from August 2006 and would like to maintain the high participation rates you have shown this year. Your advice in this respect would be most welcome.

Do remember to keep me updated as to your current email address. I will keep you informed as the study progresses.

Best Wishes Neil Munro

Dear Colleagues

Postgraduate attachment to General Practice; influence on future career intent

UPDATE JAN 2007

As one of the participants in above research I thought I would update you on progress. The study is now in its second year with completed questionnaires returned from all three cohorts in 2005/6 plus the first cohort 2006/7.In broad terms the work has two main streams; gathering of data from sci 45 questionnaires administered at the beginning and towards the end of your 4 months F2 attachment in general practice as well as interviews with those who had expressed a willingness to participate in such an activity.

Questionnaire Response Rates

Approximately 60% (67 out of 114) of those approached so far have returned two completed questionnaires. Response rates vary by cohort from over 80% to just below 50%. I am very grateful to all of you who have taken the time and trouble to respond. There are some of you who only completed the first questionnaire. I attach a further sci 45 just in case you felt able to complete the 2nd - it is the comparison of your responses before and after your attachment that reveals so much about the impact of the attachment on your career preference. I have also started emailing those of you whose attachments finished over a year ago in order to establish whether any further changes in your questionnaire scores have occurred - by asking you to complete sci 45 one more time. All data from year 2005/6 have been transcribed and are currently being processed. I will let you know preliminary findings as soon as they are available.

Interviews

Some of you will have participated in interviews following your F2 attachment. Semi-structured interviews, based on the experiences of four pilot encounters, have been

carried out with a dozen participants. Each has been transcribed. Analysis will look at emergent themes and trends in order to develop more detailed interview strategies for 2006/7.I am very grateful to those of you who have given up your time to take part in interviews. They are all anonymised and sent to you for checking before being analysed. Again, as soon as I have more information about key findings I will relay them to you.

May I take this opportunity of wishing you all a happy and successful 2007.Thank you for your help so far. If you have not returned your 2nd questionnaire I would urge you to avail of this opportunity - either by email or to the address shown below (**not** Sussex University please).I will be more than happy to reimburse any printing or postage expenses.

Best Wishes Neil Munro

Dear Colleagues

Postgraduate attachment to General Practice: Influence on future career intent UPDATE September 2007

I thought I would bring you, as a participant, up to date on the above research being carried out in the Kent, Surrey and Sussex Deanery .The impact of an F2 GP attachment on career intent is being formally evaluated by before and after questionnaires supplemented by information analysed from interviews of F2 doctors. The study is now in its third year and has included, quite by chance, the period when MTAS was first rolled out.

Factors Influencing Career Intent

Could you please complete this VERY short questionnaire (shown attached - if you have not done so already) and email/post back to me. This is to provide information additional to that gained from sci 45.

Sci 45 questionnaires

Return rates for both before and after sci 45 questionnaires are shown below;

Year 1	35/50	70%
Year 2 cohort 1	38/63	60%
Year 2 cohort 2	24/58	41%
Year 2 cohort 3	22/54	41%
Aggregate returns	119/225	53%

The reasons for lower return rates in the first half of this year remain unclear but could include pressure of assessments and uncertainty with MTAS.A third questionnaire will have come out to year 1 participants – where ever you are. If there are any of you who have returned the first questionnaire but not the 2nd I would be very grateful if you

could complete and post/email the attached version. My address is shown at the end of the email.

Interviews

The number of doctors interviewed is shown below;

Pilot	4
Year 1	12
Year 2	16

All those who responded to emailed invitations to be interviewed have been - with an even spread of participants throughout each cohort of year 2. I hope to have some detailed analysis of interview data shortly.

My Thanks

I would personally like to thank you for your ongoing support of this study. Feedback, especially during the MTAS period, confirms that there is much to learn about motivation and drivers influencing doctors in their career choices. The system is far from perfect and doctors feel less than empowered.

I will write again when data analyses are available. If there is anything you wish to ask about this work please do not hesitate to contact me.

Best Wishes Neil Munro Principal investigator